This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

No.

BOSTON
MEDICAL LIBRARY
ASSOCIATION,
19 BOYLSTON PLACE.

ANNUAL

OF THE

UNIVERSAL MEDICAL SCIENCES

A YEARLY REPORT OF THE PROGRESS OF THE GENERAL
SANITARY SCIENCES THROUGHOUT THE WORLD.

EDITED BY

CHARLES E. SAJOUS, M.D.,

AND

SEVENTY ASSOCIATE EDITORS,

ASSISTED BY

OVER TWO HUNDRED CORRESPONDING EDITORS, COLLABORATORS,
AND CORRESPONDENTS.

BOSTON MEDICAL LIBRARY ASS'N.
NOV 7 1890

Illustrated with Chromo-Lithographs, Engravings and Maps.

VOLUME V.

1890.
F. A. DAVIS, PUBLISHER,
PHILADELPHIA, NEW YORK, CHICAGO, ATLANTA, AND LONDON.
AGENCIES: SYDNEY, N. S. W.; CAPE TOWN, SO. AFRICA.

995

Entered according to Act of Congress, in the year 1890, by
F. A. DAVIS,
In the Office of the Librarian of Congress, at Washington, D. C., U. S. A.

CATALOGUED
NOV 7 1890
E. H. B.

Philadelphia, Pa., U. S. A.:
The Medical Bulletin Printing House,
1231 Filbert Street.

TABLE OF CONTENTS OF VOLUME FIFTH.

General Therapeutics, ... Section A

By J. P. CROZER GRIFFITH, M.D.,
PHILADELPHIA,
Instructor in Clinical Medicine in the University of Pennsylvania,
AND
H. W. CATTELL, M.D.,
PHILADELPHIA,
Assistant Demonstrator of Chemistry in the University of Pennsylvania.

Experimental Therapeutics, ... Section B

By HOBART A. HARE, M.D., B.Sc.,
PHILADELPHIA,
Demonstrator of Therapeutics, Clinical Professor of Diseases of Children, in the University of Pennsylvania, etc.

Electro-Therapeutics, ... Section C

By A. L. RANNEY, M.D.,
NEW YORK,
Professor of the Anatomy and Physiology of the Nervous System in the New York Post-Graduate Medical School and Hospital.

Climatology and Balneology, ... Section D

By GEORGE H. ROHE, M.D.,
BALTIMORE,
Professor of Hygiene and Dermatology in the College of Physicians and Surgeons, etc.

Medical Demography, ... Section E

By ALBERT L. GIHON, A.M., M.D.,
BROOKLYN,
Medical Director United States Navy, etc.

Hygiene, ... Section F

By JOHN B. HAMILTON, M.D.,
WASHINGTON,
Supervising Surgeon-General U. S. Marine Hospital Service,
ASSISTED BY
C. H. A. KLEINSCHMIDT, M.D.,
AND
G. M. GUITÉRAS, M.D.,
WASHINGTON.

EMBRYOLOGY, ... Section G

By W. XAVIER SUDDUTH, M.D., F.R.M.S.,
PHILADELPHIA,
Professor of Pathology and Oral Surgery in the Philadelphia Polyclinic and College for Graduates, etc.,
ASSISTED BY
E. B. SANGREE, M.D.,
PHILADELPHIA,
Demonstrator of Histology in the Medico-Chirurgical College.

HISTOLOGY AND MICROSCOPICAL TECHNOLOGY, . . Section H

By FRANK W. BROWN, M.D.,
DETROIT,
Professor of Histology and Microscopy in the Detroit College of Medicine.

PHYSIOLOGY, ... Section I

By W. H. HOWELL, PH.D., B.A.,
ANN ARBOR,
Lecturer in Physiology and Histology in the University of Michigan.

ANATOMY, ... Section J

By WILLIAM S. FORBES, M.D.,
PHILADELPHIA,
Professor of Anatomy in the Jefferson Medical College, Philadelphia, etc.

REFERENCE LIST OF JOURNALS, ... Section K

GENERAL INDEX, ... Section L

BOSTON MEDICAL
NOV 7 1890
LIBRARY ASS'N.

GENERAL THERAPEUTICS.

By J. P. CROZER GRIFFITH, M.D.,
AND
H. W. CATTELL, M.D.,
PHILADELPHIA.

We beg leave to call the attention of our readers to the fact, which may at once become apparent to them, that there are in the following pages certain omissions of papers which have appeared in the journals during the last year, and also to the same explanation of this which we gave in last year's ANNUAL, and which still holds good. This is, that those articles bearing on the use of certain drugs in certain diseases have probably been assigned to the editors having charge of the other departments. Reference to such articles as have been omitted here will therefore be found in the different volumes of the ANNUAL by reference to the index. It must also be remembered that the doses given in the following pages are, for the most part, from the writers' articles, but owing to the fact that so much diversity exists in preparations of the same drug, as in pyrodin, creolin, etc., and that we have as yet no international pharmacopœia, the doses given sometimes represent the strength of the preparation in the pharmacopœia of the country in which the article was originally written. For the sake of uniformity we have adopted the plan of giving the final "e" to alkaloids, and removing it from the drugs of a purely chemical nature.

What we shall call the long, increasing array of new medicines which are daily added to our list is of the greatest importance. A commission was appointed by the French Academy to consider this question, and a *résumé* of the report, by Dujardin-Beaumetz as chairman, is of interest. It is as follows: The chemical names of such drugs as antipyrin, sulphonal, etc., are too difficult for general use, and any therapeutic value which the drug possesses was established by reports and experiments made with the name given to the drug by its discoverer or introducers. Several important legal facts at once arise and are answered by the jurist Pouillet, who says: (1) "The chemical name cannot be used as a trade name, but any appellation derived from any of its properties, real or fancied, is the property of the person so using it, and can be protected by law; (2) if the physician prescribes a drug by its trade name, without adding the name of the inventor or commercial house making it, the druggist is able to put up the drug by its chemical name. Thus, if antipyrin (Knorr) be prescribed, the druggist must dispense dimethyloxyquinizine prepared by, or under the permission of, Knorr; but if antipyrin be written for, the druggist has a perfect right by law to dispense dimethyloxyquinizine, whether prepared by Knorr or any other manufacturing chemist."

As too much confusion would be caused by the Academy giving a new name to each drug (tried by Bourgoin, who attempted to call antipyrin, analgesin), it was recommended that the popular name be employed in writing the prescription, but that the druggist be permitted to use the chemical name of the compound in filling it.

This decision of the French Academy cannot attract too great attention. We are as ever firmly opposed to the use in medicine of patent and proprietary medicines. Yet the value of antipyrin is so great that its employment is almost a necessity. In the absence of any term shorter and more appropriate than the chemical one, we have designated it by its usual title, but with the hope that physicians will insist on druggists furnishing an article with the proprietary name unaltered, should such a substance be procurable. The term "acetananilid" they have invariably substituted for "antifebrin," the proprietary title.

Abrus Precatorius.—In a communication to the Royal Society, Martin and Wolfenden[1063 May; 2 July 27] have proved the existence of a globulin in abrus precatorius (jequirity). Martin has also found an albumose. Both of these compounds possess toxic properties, which, however, are destroyed by moist heat. When these proteids enter into the circulation, a form of poisoning is produced, which, according to Martin, strikingly resembles that produced by the venom of the snake. The chemical composition of these two poisons is similar, local lesions of the same character being produced, the body temperature being lowered, and the blood remaining fluid after death.

Absinthium.—Cadéac and Albin Meunier[211 July 26] have performed on animals some interesting physiological experiments with small and large doses of the oil of wormwood, and find that it possesses antiseptic properties in a marked degree.

Acetanilid.—As in the history of every drug, so in that of acetanilid—on its introduction the uses to which it was put were almost innumerable; reports of favorable results poured into the journals from all sides, and it seemed as though the typical analgesic and antipyretic had been discovered at last. Soon, however, unfavorable reports began to be made, attributing to it either inefficacy or positive harmfulness. That too large doses were at first used cannot be gainsaid, and, until experience taught the proper sphere of its action, the drug was expected to perform marvels of healing. The probability is that, in acetanilid, we have added to our armamentarium a drug powerful for good or for evil, according to the occasion and the manner of its use. The reports of both its good and bad results are still being published, but will undoubtedly steadily diminish in number as we become more able to strictly define the field of its therapeutic application. As an analgesic, especially in cases of neuralgic or neuritic nature, or in pain from reflex causes, acetanilid has been of marked benefit. In sciatica, lumbago, trifacial and other neuralgias, girdle-pain of locomotor ataxia, ovarian or other visceral pain, it has been freely used throughout the past year, and still maintains a well-deserved reputation. As an antipyretic it has also been much employed, some writers ceding it first place among the newer drugs of this class. It is certainly of value where medicinal measures are allowable or advisable in combating hyperpyrexia. Its insolubility in water is a disadvantage, from the fact that its use by enema or hypodermic syringe is prevented. It is, however, easily administered in capsule or in a dry powder on the tongue. Its power to abbreviate disease is probably simply one of the many merits that were at first unwarrantably claimed for it.

A. Crombie,[15 Oct.] in reviewing the comparative values of antipyrin, acetanilid, and phenacetin, places acetanilid second as regards rapidity and certainty of action.

Opinions differ as to the value of the drug in typhoid fever. C. Z. Wroczynski[520 No.48] believes it is decidedly harmful in that it lengthens the course and intensifies the symptoms of the disease. Other authorities, however, while not claiming any abbreviating action for the drug, highly recommend it for combating the symptoms of hyperpyrexia. It would seem that in acetanilid we have a drug that can relieve one of the most serious symptoms of typhoid fever, and that, if used in small doses and with due regard to the condition of the patient's cardiac and respiratory functions, it is not dangerous. Wroczynski thinks the drug has a specific action in croupous pneumonia, not only lowering the temperature, but also diminishing the extent of the pathological changes.

In both of these diseases acetanilid may prove inefficacious, as is shown by W. S. Greene,[112 Jan.] who reports 3 cases of typhoid fever and 1 of pneumonia, in which, after acetanilid failed to reduce the hyperpyrexia, antipyrin succeeded. The drug would seem to be of especial service against the hyperpyrexia accompanying the febrile diseases of childhood, and also as an almost specific antispasmodic for the paroxysms of whooping-cough. Several instances of alarming toxic symptoms following the administration of acetanilid to children have been reported during the past year; but, as a rule, they have been the result of either too long continued administration after the fall of temperature began or of a dose out of proportion to the age of the child. Most authors agree in considering the drug a good and safe antipyretic for use in childhood. The number of cases reported during the past year of the occurrence of uncomfortable or alarming symptoms, out of all proportion to the dose employed, shows that there exists in some people an idiosyncrasy to the action of the drug. As yet we can have no means of foreseeing such ill effects; but it is possible that in the near future some of the factors causing these peculiarities may be recognized. W. R. Cushing[9 Dec. 22, '88] reports the case of a nursing woman suffering from mild typhoid fever, in whom the repeated administration of 5 grains (0.32 gramme) of acetanilid, two or three times in twenty-four hours, produced, with the fall of temperature, sweating and a free accumulation of milk in the breasts. The author cited believes, and probably correctly, that the increased production of milk was due not only to the lowering of temperature, but also to the stimulation of the mammary as well as the other less highly developed sudoriparous glands of the skin. Sembritzki[116 Jan.] has apparently discovered one of the classes of patients who exhibit marked susceptibility to the influence of acetanilid. In a number of cases of pregnant and nursing women who were suffering from typhoid fever, he observed disagreeable or alarming symptoms follow the exhibition of any but very moderate doses of the drug. Larger, but still moderate, doses were frequently followed by profuse diaphoresis, or even collapse, whereas the temperature was easily reduced by a dose that in other cases would seem to be entirely inadequate. Joseph Haigh[186, Oct.] reports 2 cases in which gradual loss of memory was produced by long-continued administration (5 to 30 grains—0.32 to 1.95 grammes) of acetanilid. Memory was regained upon stopping the drug. James Wilding[2, Sept.14] reports the case of a young man, 19 years old, with acute pulmonary tuberculosis, in whom 10 grains (0.65 gramme) of acetanilid produced collapse. C. Klippel[102, Dec.,'98] saw acetanilid produce cyanosis and oppressed breathing, without reduction of temperature, in a case of blood-poisoning. The cause of the latter was not stated. Chéron[17, Mar.31; 28, June 1] reports a case of neurasthenia in which eight doses were readily taken without bad effect, but the ninth produced marked cyanosis and collapse, which were successfully combated by free stimulation. The amount administered with each dose was not stated.

E. Fürth[118, Apr.21] reports a case of poisoning by a single dose of 4 grammes (62 grains) of acetanilid. The symptoms were excessive vomiting, superficial and slow breathing, and a cyanotic face. Later on, the pupils were dilated, there were gnashing of the teeth, nervous twitching, delirium, and coma; eight hours later the patient became conscious, but complained of pain in the stomach. In two days she was able to leave her bed. W. R. Allison's[151, Jan.31,'99] patient was equally fortunate. A man took, by mistake, 17 fluidrachms (62.80 cubic centimetres) of a mixture containing 1 part of acetanilid in 6 parts of compound elixir of taraxacum. Recovery ensued, although the patient exhibited the most profound symptoms of cardiac and respiratory depression. Pauschinger[209, Sept.17] reports a case of violent diarrhœa following the administration of 1 gramme (15½ grains) of acetanilid every hour until 5 powders had been taken. It took ten days to control the diarrhœa.

The average dose for an adult may be set down as from 4 to 7 grains (0.26 to 0.45 gramme), repeated, if necessary. For children the dose should be smaller, but need not be reduced to quite the proportion necessary with most drugs. The prolonged use of acetanilid is certainly not without danger, which may be of two kinds: 1. The production of marked and more or less transient changes in blood composition has been frequently reported from its long use. 2. There seems to be some cumulative power in the drug, as is illustrated by a case reported by Robert Haley.[82 Nov. 9]

In this case a young married woman took 4-grain (0 26 gramme) doses of the drug at frequent intervals, until, at the end of three days, 48 grains (3.11 grammes) had been taken. On the third day of this course of self-medication, the patient suddenly fell from her chair, unconscious and cyanosed.

The most common toxic symptoms presented are marked cyanosis, labored respiration, palpitation of the heart, weak and thready pulse, cold extremities, subnormal temperature, and other symptoms of collapse. The drug would therefore seem to be a depressant to the functions of respiration and circulation, with disturbance of the vasomotor system and probably of the heat-regulating centres. That the cyanosis is due to the respiratory difficulty, and not to the reduction or alteration of hæmoglobin, is shown by its rapid disappearance under treatment.

The indications for treatment of the poisoning are plain. Cardiac, respiratory, and vasomotor stimulation are imperatively demanded. Ether, hypodermically, has been most frequently used, but in belladonna we have probably the best drug to fulfill the indications. This drug, with external warmth and some more direct cardiac stimulant, would, *à priori*, seem to be the best remedy we have for antagonizing the overaction of acetanilid. The beneficial effects to be derived from the use of belladonna are seen in a report by James E. Gibbons,[104 July 4] of a case of poisoning produced by the injection of a drachm (3.90 grammes) of acetanilid. In this case Gibbons administered tr. belladonnæ, 4 drops every half-hour, for four doses, after which the remedy was repeated every two hours for about eight hours, the time required to entirely overcome the toxic symptoms. A fatal case has been reported,[26 Mar. 1] occurring in a child, from the administration of 3.85 grains (0.25 gramme) of acetanilid, every two hours during the day. By evening the child was cyanosed and in fatal collapse.

Acetic Acid.—E. and J. A. Cutter,[760 July 20] make the remarkable statement that vinegar should be used with great caution, as by its use tuberculosis may be produced. They recommend that vinegar be prepared from the wine of grapes. In the treatment of gonorrhœa, E. Maguire[186] has used with good results a 1- to 4-per-cent. solution of acetic acid.

Aconite-root.—P. W. Squire,[6] thinks that aconite-root should be gathered in the fall, when it is at perfection, rather than in the winter or early spring, as directed in the British Pharmacopœia. Frank Woodbury[62] reports a case of poisoning from the "normal liquid aconite-root," of which the dose is given as .03 to 0.13 gramme ($\frac{1}{8}$ to 2 minims). Two doses of 1 minim (0.06 cubic centimetre) each, given one hour a part, produced tingling, mild delirium, diplopia, and other indications of aconite poisoning.

Aconite.—Fred. C. Valentine[1] relates a case of poisoning in which a stout German took eighteen tablets of aconitine, each containing $\frac{1}{260}$ grain (0.000025 gramme). They were probably taken within half an hour. He was found an hour and a half afterward with symptoms of paraplegia, stertorous, irregular respirations occurring from six to thirteen times a minute, strangling, and tingling in the fauces. The pulse was irregular, the pupils slightly dilated and sluggish. The man recovered under the use of morphine hypodermically, emetics, whisky, and ammonia.

Adhatoda Justicia (syn., *Adhatoda Vasica*, *A. Gendarussa*, *A. Pubescens*).—The natives of Ceylon use with asserted benefit adhatoda in pulmonary and catarrhal affections. The leaves contain an alkaloid (vasicine) and an acid (adhatodic acid). In experiments made by Hooper,[174] it was found that an infusion of the leaves was poisonous to flies, fleas, spirogyra, and animalculæ, but harmless to the larger animals. Jayesingha has used it with great benefit in asthma in doses of 10 grains (0.65 gramme) of the powdered leaves, t. i. d., $\frac{1}{2}$ fluidrachm (1.85 grammes) of a tr. ($2\frac{1}{2}$ ounces—77.76 grammes—of dried leaves to 1 pint—$\frac{1}{2}$ litre) t. i. d., the patient being also advised to smoke the leaves in a pipe. H. H. Rusby[80] suggests its use in diphtheria.

Adonis Vernalis—Adonidin.—An editorial[60] states that the glucoside, adonidin, is obtained from adonis vernalis. Thomas Oliver[6] used it in 6 cases with marked success. Where there is mitral and aortic regurgitation it is of great value. The action on the blood-vessels is hardly perceptible.

Agaricine—Agaric Acid.—W. T. Thackeray[231] quotes Pribram, the discoverer of the alkaloid, agaricine, as summing up his experience of the physiological action as follows: Sweat is always decreased; thirst and the excretion of the urine are diminished; the functions of the lungs and skin are not interfered with, and there are no bad effects. The administration of pure agaric acid greatly lessens the danger of vomiting and purging. The subcutaneous injection of the soluble sodium salts should not be used, as violent inflammation may follow. Hofmeister's[273, v.25, p.189] physiological experiments have shown that it checks pathological sweating not by a central action, but by directly influencing the glands themselves. In this only does it resemble atropine. Small doses, 0.02 to 0.03 gramme (⅓ to ½ grain) are preferred to a single large dose. The action is slow, but lasts a long while.

Alcohol.—J. M. Farrington[1, Sept.28] denies the value of alcohol as a therapeutic agent, adding, as proof, his own experience and the articles of some writers who agree with him. Alëxëi M. Mohïlansky[1011; 90, Nov.] has studied the dietetic action of alcohol on 15 healthy men. His researches were made in order to determine the nitrogenous metabolism and the assimilation of the proteids and fats by means of the occasional use of alcohol. In those habituated to its use the appetite, as well as assimilation of the nitrogenous constituents of the food, is increased. In those who are total abstainers assimilation is somewhat decreased. The absorption of fats is also diminished by alcohol. Perspiration is increased, and this interferes with the renal function and occasions a diminution in the excretion of urine. An editorial writer says that alcohol is the usual remedy given in shock, and that we know that it has as true an anæsthetic action as chloroform or ether in diminishing the sensibility and activity of the nerve-centres. Instead of alcohol, it often would be better to use atropine, digitaline, strychnine, and caffeine. Another writer[60, Feb.22] says that pure alcohol has been recommended to replace wines and spirits, but it should not be forgotten that, if used for any length of time, the alcoholic habit may be produced. As a rule, only those remedies should be employed that cannot be abused by the laity in the absence of the physician.

We have repeatedly prescribed pure alcohol with a menstruum containing a small amount of some bitter, giving this in the cases where stimulants were indicated; yet, where the scruples of the patient or our own fears prevented the administration of liquors, the fact that alcohol is of about double the strength of liquors gives it another advantage through the small size of the dose.

C. L. Dodge[60, Dec.4,'89] reports a case of alcoholic epilepsy in a woman aged 34. The convulsions were of the first kind described by Wood.[1128, p.117] Compound cathartic pills and bromide of potash were used to check them. We have seen a case of this nature quickly relieved by emesis from the use of $\frac{1}{12}$ grain (0.005 gramme) of apomorphia.

Aliments.—H. Lantener,[1124, V.3,No.1] in a thorough and most interesting treatise on hygiene of alimentation, gives, in a very practical classification, the very various indications for diet in disease recognized by the most prominent authorities. Part 1 treats of the hygiene of alimentation, with regard to the indications arising from the patient's constitution, etc. Part 2 treats of the same, with regard to the disease. Part 3, with regard to the food. On page 20 he gives his prescription for nutritive enemata. For forced artificial feeding he prefers the naso-pharyngeal tube. The chapter on chronic gastro-intestinal diseases is most instructive and exhaustive. Lantener emphasizes a most important principle in the treatment of dyspepsia, viz., that it is invariably cured by diet and hygiene, never alone by medication.

John Montgomery[105, Sept.15] gives some practical hints relating to the choice and preparation of food for invalids, and Dujardin-Beaumetz[17, May 16] makes some interesting remarks on the prophylaxis of certain diseases by the food we eat. He thinks that a vegetarian thus escapes many of the diseases from which mankind suffers. A lecture by S. T. Rorer[19, Jan.13] is reported in which are given some excellent methods for preparing food for the sick. She claims that, while the physician will not often be called upon to prepare these articles himself, still it is his duty to know how to prepare them in order that he may determine whether the dishes are properly cooked.

Th. Zerner[169, Oct.] has carefully examined *cocoa-nut butter* chemically and bacteriologically. He finds it to be a fat which fulfills all hygienic requirements. It does not contain fatty acids, and it keeps well, even if exposed to the air for several weeks. On account of its easy digestibility, it is recommended in gastric affections. Ris[575, p.816; 2, Sept.26] is quoted as finding *pea-soup* to be a most excellent food. There is an albumen found in peas, lentils, and beans, which is equal to egg-albumen as to its food value, but much more easily digested. By putting *starch* in tubes and placing them in an oil-bath of a temperature of 180° C. (356° F.), Debove[108, Sept.14] prepared a soluble starch, which is a powder of a light-yellow color, very soluble in boiling water, and giving a blue color with iodine, but not reducing Fehling's solution. If potatoes are used a powder is produced, which is palatable, easily digested, and forms with water or milk an excellent food. The amount of urea excreted is greatly diminished if this food forms part of the diet. Charles M. Jessop$^{2}_{\text{Aug.31}}$ treats of the physiological value of *meat* food and the best methods of preparation in order to avoid waste. After many trials, he found that 4 ounces (124 grammes) of meat can be suspended in 20 ounces (622 grammes) of water without the collection of any sediment, so annoying to the patient. Two to 4 ounces (62 to 124 grammes) of such a preparation can be given every three hours, is well borne by the stomach, and is sufficient to sustain a sick man.

Thomas Laffan$^{2}_{\text{Jan.26}}$ discusses the value of *beef-tea* from a double stand-point: first, as a nutrient; second, as a mere stimulant and flavorer. Even Liebig believed it to belong to the second group rather than to the first, for he classes it in the same category with tea and coffee, and believes that it "neither economizes carbon for our temperature nor nitrogen for the sustenance of our tissues." Hassall has shown that it would require 14½ pounds (7¼ kilogrammes) of beef-tea to supply the daily nitrogenous waste of one person, and experiments on dogs have shown the fact that they die sooner when fed on Liebig's extract alone than when deprived entirely of food. Cold beef-tea, when prepared with a percentage of albumen and administered to sleepless patients, had a narcotic effect. Brunton has found albumen in the urine soon after its administration, and on this account believes that it may frequently be injurious. A writer editorially$^{130}_{\text{June}}$ says that bacteriologists have chosen gelatin as the best material with which to make cultures, and it is possibly owing to the gelatin in beef-tea that it may favor the progress of such diseases as are characterized by the growth of microbes in the digestive tract. In typhoid fever the temperature seems to range 1 degree higher (F.?) when the patients are fed on beef-tea.

Quaglio$^{80}_{\text{Apr.15}}$ has prepared *gelatin capsules* containing the extractive matters of meat, fat, spices, and salt. These capsules, when placed in hot water, dissolve immediately, and yield as perfect a bouillon as if freshly prepared. The histological and chemical composition of *milk* is discussed at length by A. Béchamp.[208] Germain Sée thinks that he has found lactose to be the principle to which milk owes its diuretic properties. (For an abstract of his interesting paper, see Lactose). Of others writing on milk and the milk foods, Ad. Tscheppe[80] enters into the chemistry of *koumiss* and *kefir*, and gives the best methods of preparing and preserving them. N. Russell[147] thinks that kefir is superior to artificial koumyss, and a good imitation of natural koumyss prepared from mares' milk. It is one of the best forms of dietetic treatment, and a reliable tonic, expectorant, and diuretic. The writer considers it of especial value in affections associated with malnutrition, especially when complicated by diseases of the respiratory and digestive organs. E. Krauss,[6] of the children's department of the Vienna Polyclinic, says that kefir consists of milk which has undergone two distinct kinds of fermentation—the alcoholic, produced by the yeast-like cells of the ferment, and the lactic acid, due to a bacillus also contained in the kefir. The actual contents of the kefir are alcohol, lactic acid, carbonic acid, and peptone. It has been given to children as young as 2 months, and is said to have proved most valuable in gastric and intestinal catarrh. Dinitch[211] thinks that kefir contains the nutritive properties of milk in their most digestible form, and that the especial value of the ferment lies in its action on the casein.

Allium Cepa.—George Covert[192] says that onions form a good expectorant and prophylactic. Sweet milk taken afterward will remove the objectionable odor from the breath.

Allyl Hydrobromate.—A writer[735] calls attention to the value of the hydrobromate of allyl, whether administered hypodermically or by the mouth, as being a nervine and somnifacient of unusual value. The dose is 5 drops. In a patient suffering from an epithelioma, where morphine had failed, injections of this drug gave relief.

Allyl Tribromide (syn., *Tribromhydrin*, *Tribrompropenyl*).—Allyl tribromide has been recommended[80] in 5-drop doses in whooping-cough, and also as useful in hysteria and asthma.

Ammonia.—Benjamin Ward Richardson[88] claims to have recognized and published over thirty years ago the fact that ammonia possesses marked antiseptic properties. As early as 1853, a severe case of croup was treated as a last resort with inhalations of chloroform and ammonia. The condition of the patient almost immediately improved, the inhalations being continued, however, for fourteen hours. The food was administered by the rectum. In order to prepare the above solution, alcohol of 830 specific gravity is saturated with ammonia and mixed with equal parts of chloroform. Any water which separates is to be removed by blotting-paper. Beverley Robinson[99, Nov. 14] considers the best means of aborting an attack of acute coryza to be the administration of rather large and frequently-repeated doses of carbonate of ammonia. "F. R. C. P."[2, Feb. 16] has used with great success carbonate of ammonium in doses of 1 drachm (3.90 grammes), dissolved in water, as an emetic and antidepressant in intoxicated individuals. H. C. Wyman[202, Jan. 10] has used with good results an antiseptic gauze steeped in an ammonium-chloride solution, 1 ounce (31 grammes) to ½ pint of water (25 centilitres), and applied to contused wounds. He finds that rhythmical contractions of the non-striated muscles of the smaller blood-vessels are stimulated, and that the circulation of the blood is increased in the parts which have been deprived of the wholesome influence of the blood-current. The use of ammonium chloride in the form of a spray is recommended by Krakauer[319, Oct. 15] in the various catarrhs of the respiratory tract, while John A. Henning[192, Jan.] calls attention to its well-attested value in pneumonia, neuralgia, and muscular rheumatism.

Amyl Hydrate.—J. von Mering[116, July] gives some methods by which the disagreeable taste of amyl hydrate can be disguised. He agrees with many other observers in thinking it to be one of our best hypnotics, and this has been our experience with it. It has seldom failed to be efficient in the many cases in which we have employed it, and is without the unpleasant after-effects of sulphonal. The disagreeable taste may be avoided by administering it in capsules.

Anhalonium Lewinii—Anhalonine.—S. F. Landry[80, Jan.] considers anhalonium, in drop doses, a sustainer of the respiration and a cardiac stimulant. Seminal emissions may occur from its use without an erection of the penis. It forms a valuable adjuvant to digitalis. An alkaloid (anhalonine) has been extracted from it by Lewin.[80, Apr., '89] It is a glucoside, with an action somewhat like that of strychnine, and it is very poisonous.

Anisic Acid—Methylic Ether of Para-oxy-benzoic Acid.—This acid has been found by Antonio Curci[314, May] to be an antiseptic equal to salicylic acid, and an antipyretic, acting more intensively and harmlessly than that acid, except in articular rheumatism. It should be given in the form of sodium anisate. It is easily taken, and can be administered in larger doses than the corresponding salt of salicylic acid.

Anthrarobin.—Anthrarobin has been used with good results by Rosenthal and Köbner[118, 9] in tinea tonsurans, psoriasis, pityriasis versicolor, and herpes. It has advantages over its relative, chrysarobin, in the fact that it produces less inflammation, and in that any stain on the linen can easily be removed. An alcoholic solution of 10 to 20 per cent. is used, and should be freshly prepared every week. Rosenthal's preference[45] is, nevertheless, for chrysarobin. At the Dermatological Society, of Berlin, he showed 3 cases of psoriasis which had been treated with anthrarobin with but little success. Th. Weyl[246, 57] has made comparative tests regarding the toxicological action of anthrarobin and chrysarobin, administered internally and by the skin. Anthrarobin was found to have no toxic properties, even in large subcutaneous, cutaneous, or internal doses, while the greatest part of the drug appears in the urine unchanged; some has been oxidized to alizarin. Chrysarobin is changed in the system into chrysophuric acid, and is excreted as such.

Antiaris Toxicaria.—H. W. Bettenk[510] says that the milky juice of this plant, which is used as an arrow-poison in the East Indian Archipelago, contains three active principles—antiarine, œpäin, and toxicarine. The first is the most important.

Antimony.—H. H. Littlejohn[86] mentions a case of death from taking, with suicidal intent, a quantity of butter of antimony.

Antipyrin.—The field of usefulness of this drug has been widely extended during the past year, and there have been some facts added to our knowledge regarding the contra-indications to its employment. As an antipyretic it still holds the highest place, partly, no doubt, from the ease with which it is administered. As an analgesic it is still of great value, especially in the painful affections of the nervous system, where, also, its sedative action on reflex manifestations renders it of double value. Dujardin-Beaumetz[67] thinks that of all the antithermic analgesics antipyrin is the best, on account of its solubility and its non-toxic properties when given in proper doses; and A. Crombie,[15] in reviewing the comparative values of antipyrin, antifebrin, and phenacetin, places antipyrin first as regards efficacy, rapidity, and certainty of action. In sun-strokes and, generally speaking, in hyperpyrexias, from whatever causes, it is to be preferred. Edward Rondot$^{70}_{\text{Mar.24}}$ highly extols it as an analgesic and neuro-reflex sedative in children as well as in adults. In sucklings he has observed it assert this double action in convulsions, especially when due to dentition. His greatest successes with it have been in cases of chorea, pertussis, and true or false asthma. In chorea 15 grains to 1 drachm (1 to 3.90 grammes) per day were given by him for more than a month without the production of any accidents, and he is led to believe that children are not so liable as adults to the production of anomalous or disagreeable symptoms. This comparative immunity he believes to be due to the unimpaired function of the kidneys. In chorea he recommends 7½ grains (0.50 gramme) as the commencing dose for a child of from 14 to 15 years of age, and increases the dose rapidly to 1 drachm (3.90 grammes) a day. The latter dose he found to occasionally produce a scarlatiniform eruption and a sense of general fatigue. That the drug is not a prophylactic against the essential fevers is proved by the occurrence, in one case, of scarlatina during the administration of antipyrin for chorea. In whooping-cough he has found the remedy very efficacious, and has noted marked insusceptibility to symptoms of poisoning by the drug. He, however, cautions against its reckless use, owing to the marked tendency in this disease toward engorgement of the right side of the heart. He recommends that the drug should be given in daily increasing doses, the largest dose being always administered at bed-time in order that the nocturnal paroxysms may by that means be lessened or abolished. For a child a year old he recommends 1½-grain (0.10 gramme) doses three or four times a day.

In all forms of paroxysmal asthma he has used the drug with marked benefit. In acute articular rheumatism he has found the pain to be, as a rule, lessened by the second and absent by the third day of treatment. He recommends that for a few days after subsidence of the symptoms the drug still should be continued in small doses. He has found it to have no influence upon the supervention of cardiac complications. In pertussis, G. Leubuscher$^{319}_{\text{Feb.16}}$ has used the drug after the method recommended by Sonnenberg, with success, both in ameliorating the symptoms and in shortening the attack. E. T. Bruen[112/Jan] has found antipyrin of service in allaying the spasmodic cough of influenza associated with bronchial catarrh and, in some cases, with subacute bronchitis. The peculiar liability of antipyrin to produce sudden alarming symptoms after prolonged use, as well as its ability to produce most severe and long-continued nervous disturbance, is well illustrated by the account of the course of antipyrin poisoning given by Franz Tuczek[4/Apr 30] as occurring in his own son. The child was 4 years old and healthy, except for the fact that he was suffering from pertussis, for which antipyrin was given daily in three doses, and in amounts ranging up to 22½ grains (1.46 grammes) per day. This treatment had been continued steadily for three weeks without the production of any but happy results. At the end of the time stated, the boy, without any premonitory signs, became drowsy, somnolent, and, in a short time, comatose, with dyspnœa, irregular cardiac action, dilated pupils, and convulsions. The convulsions were severe, frequently repeated, tonic and clonic in character, accompanied at times by complete opisthotonos. A macular erythema appeared, with subnormal temperature. Marked swelling and hyperæmia of the uvula and pharynx were noted, as also acetonuria. Rapid, but by no means sudden, recovery ensued by the gradual amelioration of all the symptoms, which appeared for a time to threaten life. From this case it would seem that in antipyrin, ordinarily a safe and extremely useful drug, we have a most powerful nervous poison, and while, as a rule, the symptoms following its use in susceptible patients are not more than annoying, yet its indiscriminate employment by non-professional persons, or its reckless use by physicians themselves, is by no means free from the danger of producing either most threatening symptoms or even death, as has occurred in numerous reported cases. By the accumulation of more records of cases in which the drug has shown unlooked-for or unwished-for results, we may finally arrive at some more accurate knowledge as to the individual peculiarities which act as danger-signals in all administration. At present it would appear that cardiac debility and perversion of the respiratory function are positive indications for care, yet, as shown by Tuczek's case, we will probably never be able to be absolutely certain that the drug *may* not produce far different effects from those intended. Jules Simon,[14/Jan 30] regards it as the most effectual agent in chorea, and directs that the commencing dose be one of 0.50 gramme (7¾ grains), increasing the quantity until 4 grammes (62 grains) a day are taken by a child of 14 or 15 years of age. As a hæmostatic, Ortal[195, Dec.,'88] has used antipyrin after the method of Hénocque in cases of hæmoptysis due to phthisis, and obtained very happy results with it. Saint-Germain[118, Aug.; 80, Oct.] also has made use of its property by applying it to the bleeding surface after the removal of hypertrophied tonsils. R. Robinson[35, Mar.14] reports a case of uterine hæmorrhage readily controlled by the local application of a 10-per-cent. solution to the cervix, after tamponing, digitalis, ergotin, quinine, and tannin had been tried in vain. As a local application, the hypodermic injection of a 50-per-cent. solution into the affected part has also been of benefit for the relief of pain. H. Huchard[80, Jan.24] reports a case of renal colic in which he administered antipyrin, 15 grains (0.97 gramme), several times a day, with marked relief. The patient contracted the habit of taking two 15-grain (0.97 gramme) doses daily, and at the end of six months was free from pain, with clear urine containing a normal quantity of uric acid. This case, taken with one reported by Schuerig and quoted by Huchard, indicates that the drug may be of much use in the uric-acid diathesis, as well as in renal colic. Haig,[15, Nov.,'88; 827, Mar.] on the other hand, concludes that in gout and in the uric-acid diathesis antipyrin is contra-indicated, owing to its increasing the acidity of the urine. From this he draws the conclusion that a hemicrania which fails to be relieved by antipyrin may be considered to be of uric-acid origin.

The use of antipyrin in mild cases of diabetes mellitus is strongly recommended by Sée and Dujardin-Beaumetz,[8, Apr.10] the glucose often entirely disappearing from the urine, especially in nervous patients and those having polyuria. Antipyrin should not, however, be used exclusively, and the diet must be suitable. Panas recommends its use before operating on patients with diabetic cataract; 45 grains (2.90 grammes) a day should be given; and Robin finds that there is no necessity for continuing its use if good is not effected in a short time. Grandclément[211, Mar.17] gives the account of a patient suffering with chronic glaucoma, to whom 10-grain (0.65 gramme) doses of antipyrin were given at intervals, with much benefit. After eight months of frequent employment of the drug, it suddenly produced marked ecchymotic lesions, most numerous and intense upon the upper portion of the body, but without general symptoms. This, with other cases reported, although manifesting symptoms varying both in kind and in intensity, show an apparent cumulative action of the drug. In none of these cases was any change in the blood noted.

T. Haven Ross[9, Dec. 4, '90] recounts a case of mammary distention consequent upon weaning, in which he gave antipyrin three times a day in doses of 3 grains (0.19 gramme), with the result of checking milk secretion entirely in three days. As with all the recent drugs of complicated chemical structure, the greater the simplicity of the formula employed in administering antipyrin, the more certain we are that all of the drug ordered is taken in a sure and safe form. Ollivier has called attention to the fact that in a mixture of cinchona and antipyrin all of the active principles of the former are precipitated. Ferrand,[305, Sept. 15; 151, Oct. 24] too, does not think it wise to give antipyrin in complex mixtures, as we are not as yet sufficiently familiar with its chemical composition to know what compounds may be formed. P. Vigier[35, July 4] has found, as have other observers, that the combination of antipyrin and salicylate of soda, in the dry state, soon forms a pasty mass, probably from their hygroscopic quality. A mixture of the two drugs in solution, however, remains permanently unchanged. The green precipitate produced by the addition of antipyrin to sweet spirits of nitre has been observed frequently, and H. C. Wood and John Marshall[80, Feb. 15] have found that this precipitate is iso-nitroso-antipyrin, which, though not poisonous, loses in usefulness and effectiveness owing to the fact that a certain amount of the antipyrin is rendered inert. The compound was found to be produced by the action of free nitrous acid, either as it occurs in ordinary sweet spirits of nitre or when it is formed from the action of water upon ethyl nitrite. John A. Miller[6, Mar.] arrived at the same conclusion as Wood and Marshall regarding the origin of the iso-nitroso-antipyrin. In addition, he states that, if the free nitrous acid of the sweet spirits of nitre be neutralized, the subsequent reaction does not occur. G. Evans[90, Feb.] says that he has frequently combined antipyrin and sweet spirits of nitre, not only without deleterious results, but with success in combating the symptoms calling for their administration.

Many curious symptoms have been reported as sequences to the administration of antipyrin. S. E. Henschen[372, V. 34, No. 4; 90, July] and Hermann Mueller${}^{2}_{\text{Feb.9}}$ both report rises of temperature after its administration. Besides this effect, many varieties of lesions of the skin have been described, from simple erythema to more deeply seated and less transient lesions. In explanation of the singular fact that on administering antipyrin and other antipyretics the temperature sometimes rises instead of falling, Geigel, of Würzburg,${}^{6}_{\text{Sept.14}}$ has observed that with these agents the temperature always rises at first, and then falls rapidly, on the occurrence of diaphoresis; he thinks that in those cases in which diaphoresis is slow in appearing the initial rise in temperature has also probably lasted longer. According to this explanation, the paradoxical effect of the antipyretic is due solely to the absence of diaphoresis. D. C. G. Bourns${}^{2}_{\text{Oct.12}}$ has seen extensive ulceration of the lips, tongue, and pharynx follow the use of antipyrin for hemicrania. C. S. Purdon${}^{2}_{\text{June 15}}$ saw the following peculiar sequence after a 5-grain (0.32 gramme) dose of antipyrin had been given for sciatica. In the order in which they are named, there appeared tingling and burning in the gums, throat, and nose, with sneezing, dizziness, amaurosis, sensation of pins and needles down the sides of the neck, with a sense of constriction in the throat, and dyspnœa, cyanosis, extension of the sensation of pins and needles down the right side of chest, abdomen, and scrotum, inability to stand, and cramps in the right arm and hand. The administration of stimulants caused cessation of all these disagreeable and alarming symptoms.

Thomas Wingrave${}^{6}_{\text{Aug.17}}$ recounts the case of a young woman suffering from chronic ovaritis with dysmenorrhœa, in whom a powder of antipyrin, given for the relief of the latter symptom, produced a feeling of suffocation, dyspnœa, loss of power on the left side, weakness of the right, with the prompt appearance of a bright erythematous eruption. There was also a sensation of pins and needles down the left side, followed by collapse, cold sweat, and vomiting, from all of which symptoms she recovered in ten minutes after the institution of free stimulation.

H. Huchard${}^{80}_{\text{Mar.15}}$ likewise reports a case of dysmenorrhœa in which the administration of 15 grains (0.97 gramme) of antipyrin produced chill, cyanosis, syncope, and headache. This, with the occurrence of 2 additional cases of poisoning from antipyrin during the menstrual period, induces him to look upon that epoch as one in which antipyrin may be contra-indicated. A dose of 15 grains (0.97 gramme) is also reported by William P. Northrup[9, Apr. 27] to have given rise almost immediately in a hysterical woman to sneezing, vomiting, great prostration, evacuation of bowels, and syncope of thirty minutes' duration. A dose of 5 grains (0.32 gramme) is said to have caused sneezing, urticaria, and dyspnœa. Berger[116, Apr.] reports still another instance of poisoning by 15 grains (0.97 gramme) of the drug, the peculiar features of which were marked œdema of the whole face, profuse salivation, diarrhœa, and paresis of one limb, lasting several days.

Apomorphine.—George Westby[2, Feb. 2] records the case of a drunkard in whom $\frac{1}{10}$ grain (0.006 gramme) of apomorphine, hypodermically administered, followed in five minutes by another ($\frac{1}{40}$ grain—0.0015 gramme), caused collapse, unconsciousness, cold surface, and absence of pulse at the wrist. H. A. Hare[673, Feb.] thinks this was due to the insertion of needle directly into a vein and the sudden precipitation of the drug upon the vital centres. Talfourd Jones[2, Feb. 9] thinks that the fatal termination of several cases reported should be attributed to other causes than to apomorphine. John Brown[2, Mar. 9] finds the average time between the hypodermic administration and emesis to be 10.1 minutes. In a case of hysterical crisis (opisthotonos) I. G. Stevens[109, June] gave $\frac{1}{20}$ grain (0.003 gramme) of apomorphine hypodermically. As soon as vomiting occurred relaxation and complete relief followed.

Arsenic.—Jonathan Hutchinson[2, Oct. 12] has never known a patient to become fond of or experience agreeable effects from the long-continued use of arsenic. Friedrich Kovács[8, Aug. 15] reports, from the clinic of v. Bamberger, a case of recovery from about 10 grammes (154 grains) of arsenic. The patient subsequently suffered with athetosis of the hands and a toxic multiple neuritis. A. F. Holt[99, Aug. 1] carefully reviews the symptoms of arsenical poisoning, and illustrates by the Robinson family (in which, with criminal intent, 8 persons were poisoned with arsenic in five years) the impossibility of telling from the symptoms that we are dealing with a case of arsenical poisoning. Certainty can only be reached by a chemical examination, or proof that the poison has been taken into the system. A. Freer[2, Aug. 1] calls attention to 6 cases, previously reported[2, 1886] by him, in which jaundice was present in chronic arsenical poisoning. W. M. Leszynsky[1, Mar. 23] reported to the New York

Academy of Medicine a case of diffused pigmentation following the use of ordinary doses of Fowler's solution in chorea. There was no reason to suspect Addison's disease. James Putnam[90, Mar. 7] records 26 cases of chronic arsenical poisoning from wall-paper. He calls especial attention to the frequent occurrence of albuminuria. He remarked numbness, formication, muscular weakness, altered electrical actions in some cases; in others, insomnia, neuralgia, irritability of temper, pharyngitis, and conjunctivitis. Derangement of digestion was not at all times present. Its most constant symptom was colic, followed by diarrhœa.

A singular case is reported by a Hungarian practitioner.[6, Mar. 3] A child very backward and delicate, and troubled with incontinence of both fæces and urine, was almost magically transformed after recovering from a toxic dose of arsenic. S. W. Abbott[99, May 16] finds that deaths from suicide by arsenic in Massachusetts are on an alarming increase, and that on account of loose legislation they are relatively far more numerous than in foreign countries. In 1887 the deaths in that State from arsenic were 1.8 per 100,000, and, as compared with the total mortality, 8.8 per 10,000. At a children's Christmas party in London[59, Mar. 30] many were seized with peculiar symptoms, which were finally traced to the burning of candles which were found to contain Scheele's green. To detect the presence of arsenic in the usual salts employed in medicine, F. A. Huckiger[209, Sept. 19] prefers the test with Bettendorf's reagent. His solution of zinc chloride in strong HCl has a specific gravity of 1.45, and smokes in the air. R. Krehl[826, V. 44, No. 4; 90, Sept.] gives an extensive report of a very interesting case of poisoning from the use of an arsenical ointment given in the treatment of skin disease. During four months the entire amount used was calculated to be equivalent to 20 grains (1.30 grammes) of arsenious acid. The patient exhibited paresis of the extremities with atrophy of the muscles, the extensors being especially involved. The tendon reflexes were absent, and there were sensory disturbances with and without co-existing motor symptoms. Brouardel[100, July 4] has had good opportunities of studying the acute, subacute, and chronic forms of arsenical poisoning. Aided by M. Pouchet, he gives the results of his experience. As arsenic is chemically very closely related to phosphorus, he thinks that the entrance of arsenic into bone will be found to occur by the same means and channels as that of phosphorus.

Arsenite of Copper.—Following the advice of Boardman Reed, the arsenite of copper (Scheele's green) has been successfully used by John Aulde,[80 July 18] in the treatment of bowel troubles. One one-hundredth of a grain (0.0007 gramme) is given in small divided doses. The same writer,[9 Nov.], gives a few specimen abstracts from the fifty letters (more or less) received in regard to the value of this drug. Some of the persons gave it an extended trial, while others used it only in isolated cases; the mass of testimony was, however, in its favor as of great service in cholera morbus, cholera infantum, and enteric fever.

Balsam of Peru.—Joh. Schnitzler,[57 July 14] has written an interesting account of the action and therapeutics of the balsam of Peru as applied to the respiratory tract. It can be given in inhalations, by painting the part, and internally. Lately, following the example of Binz[319 No. 15] he has used cinnamene, to which the drug chiefly owes its properties. Various formulas are given for inhalations. Cinnamene can be volatilized by pouring on boiling water or by the various apparatus now in use for that purpose. W. Bräutigam and E. Nowack,[319 June 16] find that pure Peruvian balsam destroys micro-organisms in twenty-four hours, that in emulsions of strength up to 20 per cent. it has no influence on the cultivations used, and that the good effects produced by it are probably due to the restraining influence upon the development of ptomaines. The investigations are to be continued on the latter point.

Barium Chloride.—Roberts Bartholow,[9 Feb. 23] has successfully used barium chloride in the treatment of varicose veins. Cases of the cure of aneurism have been reported in current medical literature from its use.

Belladonna—Atropine.—The value of atropine in shock is now being recognized by surgeons. Lewis A. Stimson[1 Mar. 9], has used $\frac{1}{75}$ to $\frac{1}{100}$ grain (0.0008 to 0.0007 gramme) before giving ether, and finds that the subsequent symptoms from shock are slight. He cites the case of a woman, who, in a preliminary examination, came out of the influence of ether in a deplorable state; three days later, however, atropine was given, and she was taken from the table with as good a pulse as before the operation. Frank C. Bressler[61 May 4], refers the primary seat of shock to nervous centres in the medulla oblongata. All cases are not of this sort, as we may have shock from molecular disturbance in the semi-lunar and other abdominal ganglia.[80 Apr.1] Richard Neale[25 Feb.] cites from the literature on the subject several cases of cellulitis of the eyelids and face, caused by using atropine drops. Collins[6 V.2 '90] advises hyoscine as a remedial agent. Mikhail I. Reich[728 May, June; 26 Oct.1] reports an interesting case of epistaxis from the use of atropine drops. The patient did not have the hæmorrhagic diathesis, and on each occasion 2 drops of a 4-grain (0.26 gramme) atropine solution to the ounce caused, in five to ten minutes, a nose-bleeding lasting some fifteen minutes. It must not be forgotten that toxic symptoms may be produced by putting atropine in the eyes. W. G. Holloway[2 Jan.19] reports such a case. E. A. O. Travers[2 May 11] reports a case of recovery from 3½ grains (0.226 gramme) of atropine, taken by mistake, vomiting being produced by emetics soon after the administration of the drug. As the patient had been using drops for iritis, the system may have been slightly habituated to the drug. Baudon, of Nice,[212 Nov.] reports recovery with no bad effects in a case in which 0.035 gramme (½ grain) atropine was given hypodermically instead of morphine. The patient, somewhat accustomed to the use of morphine, was given in the course of fourteen hours 0.20 gramme (3 grains) of this drug.

Twenty grains (1.30 grammes) of atropine were taken in mistake by a Paris sub-prefect. He died three hours later, despite all aid.[22 Mar.13]

Beet-root (*Beta Vulgaris*).—V. Idelson[25 June] quotes from Kazatchkoff[551 No.9] concerning the value of a strong infusion of the common beet-root (beta vulgaris) for habitual constipation and hæmorrhoids. The dose is ½ to 1 tumblerful at bed-time or early in the morning. There is no abdominal pain, griping, or rumbling. The dose must be increased after a week's use, but constipation does not follow.

Benzole.—C. Averill[2 Mar.] relates a case in which a dose of benzole, administered by mistake, resulted in unconsciousness, weak and rapid pulse, slow breathing, and sluggish pupils. The stomach was washed out, brandy and ammonia given, and the patient recovered.

Betel-nut.—L. Lewin[57 Aug.8] has written a monograph on the betel habit, in which he considers the chemical and physiological working of the nut.

Betol.—When betol reaches the alkaline fluids of the intestine it is broken up into its constituents, salicylic acid and β-naphthol, and, like salol, it is useful in articular rheumatism.[90 Mar.]

Bismuth.—Balzer,[3 July 31] has produced poisoning in animals by the subcutaneous injection of the citrate of bismuth and ammonia. A stomatitis, different in some respects from that of mercury, is produced. The other symptoms consisted of hæmorrhages from the stomach and bowels, and diarrhœa. Balzer recommends that, if subcutaneous injections of soluble salts of bismuth are employed in men, doses smaller than those of mercury should be used. Janecék,[209 May 26] on the occasion of the trial of a person for an attempted poisoning with bismuth, was led to investigate the solubility of the official preparation of the metal, and found that a considerable amount could be dissolved in a hard water, by boiling, on account of the calcium and other salts present in the water. Instead of being innocuous, the action of bismuth has been proved[678 Feb.] to be analogous to that of mercury and lead, the difference being one of degree only. Poisoning by it gives rise to acute stomatitis, blackening of the mucous membrane of the mouth, intestinal catarrh with much pain, and increased peristaltic movement.

Bismuth Oxyiodide.—Hugh Woods,[2 Apr. 6] following the recommendation of Chassaignac, has used red oxyiodide of bismuth as a substitute for iodoform, as an antiseptic, and also as an ointment in skin diseases. The yellow oxyiodide of bismuth is more suitable for mucous membranes. Internally, it may be administered in doses of from 5 to 20 grains (0.3 to 1.3 grammes).

Bismuth Salicylate.—Ehring[25 Feb.; 9 Mar. 16] has used with advantage the salicylate of bismuth in 200 cases of dyspepsia, acute and chronic catarrh, enteritis, phthisical diarrhœa, acid diarrhœa, and dysentery. To children he gives it suspended in mucilage or glycerin. As the urine becomes acid its use in cystitis is suggested.

Blood-letting.—R. L. Payne[43 Apr.] is convinced that blood-letting is valuable in certain stages of pneumonia and pleurisy, meningitis, sun-stroke, apoplexy, and puerperal eclampsia. Crocq[6 Feb. 22] favors blood-letting, and thinks that the abstraction of a moderate quantity of blood is often of great service in diminishing the intravascular tension and stimulating the vasomotor centres by narrowing the lumen of the vessels. Hydræmia would only be produced in theory and would not occur in actual practice. H. C. Wood,[825 Aug.]

in an experience of many thousand cases of disease, has only used blood-letting three or four times.

Boldo—Boldoin.—Boldo-leaves yield a glucoside, "boldoin." Juranville[90 Mar.] thinks that it is more efficacious than chloral or morphine as a pure hypnotic.

Boracic Acid.—Lebovicz[9 Mar.3] has used powdered boracic acid with success as an antiseptic by simply sprinkling it on the wound. He used it also in anthrax, furuncles, burns, and skin diseases.

Borates of the Alkaloids.—From the fact that boracic acid forms borates with most of the alkaloids, A. Petit[359 Apr.; 276 June 6] advises their use when the acidity of the acids usually employed is to be feared.

Boro-Glycerin.—Hirschsohn[209 No.1] considers the best preparation of boro-glycerin to be that in which once the molecular weight of boracic acid (anhydride) with twice the molecular weight of glycerin (anhydride) are used. This preparation can be recognized by its dissolving in 1 part in 12 of water, or in 2 parts of 95-per-cent. alcohol.

Boro-Glycerin—Glycero-Borate of Sodium.—Hirschsohn[209 No.11] prefers, as the best preparation of the boro-glycerate of sodium, a combination of 4 molecules of glycerin to 1 molecule of borax. It is soluble in 2 parts of water or alcohol, owing, according to the writer, probably to a partial combination between glycerin and sodium.

Bromides.—L. W. Baker[60 Dec.4,'88] reviews the opinion of Clark, Hammond, Gowers, and Rosenbach in regard to the physiological action of the bromides upon the nervous system. In the writer's opinion, a condition of the brain may be produced similar to that occasioned by excessive hæmorrhage, *i.e.*, an increased tendency to convulsive action. The action is not only on the cerebral circulation, but also in the cells of the gray matter of the cord. In epileptics phthisis is common, and may rather be produced by the drug than by the disease for which the bromide is given. Peculiar mental disturbances may be met with from its continued administration. The discharge of nerve-force is mental rather than motor, and there ensues a convulsion of ideas rather than a convulsion of muscles. From the continued use of the bromides, G. Thompson[6 May 11,'88] says a well-recognized form of bromomania may be produced, and that epileptics, who fifty years ago passed easily through life, have now to be put under constraint. From a quantitative examination of the organs of a child who had taken for years large quantities of the bromide of potassium, Doyon[24, Nov.] found the drug principally deposited in the brain.

Bromine.—W. Schmalfuss[13, Mar.] reports the post-mortem appearance of the body of a man who had taken 90 grammes (2 ounces 7 drachms 10 grains) of pure bromine.

Bryonia Alba.—Petrescu[4, No. 8; 25, Mar. 30] has found that the root of the bryonia alba possesses marked antihæmorrhagic properties. He recommends its use in metrorrhagia, hæmaturia, hæmoptysis, hæmatemesis, and epistaxis.

Butyl Chloral.—Liebreich[362, June; 24, Oct. 30] finds that butyl chloral, besides its soporific properties, possesses a marked action on the trigeminal nerve. It is prescribed in the different neuralgias of that nerve in from 1- to 3- gramme (14½ to 46⅓ grains) doses.

Cactus Grandiflorus.—C. L. Gregory[60, Apr. 30] thinks that the preparations of cactus grandiflorus, to be effective, must be prepared from the fresh plant. Its use in heart disease, functional and organic, is strongly recommended by him.

Caffeine.—Henri Huchard[35, June 30] has treated the adynamic state of typhoid fever and pneumonia with hypodermic injections of caffeine. Benzoate of soda is added to the aqueous solutions of caffeine; as much as 2 to 3 grammes (31 to 46 grains) in six to ten injections may be given daily without bad results. J. B. Walker, collaborator, writes us that he wishes to place on record his experience of the great value of caffeine as a cardiac stimulant in the post-febrile stage of typhoid, and his recommendation for its trial in the same state of pneumonia. Two to 4 grains (0.13 to 0.26 gramme) every four hours should be given. A writer[80, Oct.] gives the information that theine is much used as a substitute for caffeine, and that this may account for the palpitation of the heart which has greatly puzzled recent observers. Following the experiments of von Schröder, Cervello and Caruso-Pecoraro[772, v.1, p.3; 18, Aug.] have used caffeine (0.25 to 0.5 gramme—3¾ to 7¾ grains) along with paraldehyde (2 to 3 grammes—31 to 46 grains t. i. d.), as a diuretic, and have increased the urine in a case of ascites from 900 cubic centimetres (1.90 pints), daily, to 2100 cubic centimetres (4 pints 3 ounces) on the eleventh day. (See Citrate of Caffeine.)

Calcium.—Hugh Woods[26, Oct. 1] recommends a solution of the calcium oxyiodides in those cases in which iodine or the iodides are indicated. The writer considers the iodine to be easily liberated, and therefore in a very active form. The solution must not be combined with acids, as free iodine will be liberated. For the relief and cure of spasmodic and convulsive disease, H. V. Knaggs[51, May] considers sulphur and the sulphides as among the most important remedies. One-eighth to $\frac{1}{20}$ grain (0.0032 gramme) of calcium sulphite may be given to a child 1 year old suffering with convulsions from dentition, meningitis, and even in acute tuberculosis. If a too depressant action be produced, antipyrin may be used to counteract its influence. Five cases are added where the sulphide was used, and one where sulphur, in 4-grain (0.26 gramme) doses, every two hours, was given with benefit.

Calla.—Chewing the stem of a calla is reported by F. C. Cluxton[80, Jan. 18] to have caused rigors, vomiting, lividity of face, convulsive movements, and failure of the circulation in a child of 3 years. Recovery followed the employment of stimulative treatment.

Camphor.—Chodounsky[113, Feb. 17] reports the case of a woman, 36 years old, in whom poisonous symptoms developed two hours after the ingestion of 3 grammes (46 grains) of camphor. There were for several days epileptiform convulsions, followed by coma, with great diminution of bodily temperature, suppression of urine for fourteen hours, albuminuria, nephralgia, and pain in the renal region, which was increased on pressure. The local irritation was trifling. Reichert[80, Mar.] has pointed out in the Berlin Medical Society that camphoric acid is of use in chronic inflammatory affections of the mucous membrane of the respiratory tract. Acute coryza yields to a douche of 1 to 500. To check the night-sweats in phthisis[786, May] it is administered in 1- to 2- gramme (15½ to 31 grains) doses three times a day.

Chodounsky[758, No. 3; 113, Feb. 17] has reported a very interesting case of poisoning with camphor. It appears that a woman, 36 years old, took, toward 10 o'clock in the evening, two pieces of camphor, about the size of hazel-nuts—3 grammes (46 grains) at most. Immediately after taking the camphor she had headache, but no burning in the mouth or in the stomach, and she soon fell asleep. In the middle of the night the patient awoke, walked up and down the room restlessly, complained of dizziness and weight in the head, and suddenly, after a loud outcry, fell into an epileptiform convulsion, in which the tongue was bitten in several places. Three and a half hours afterward the patient was pale, almost completely unconscious, extremities cool and moist; unintelligible answers were given to questions; the pupils were moderately dilated and reacted promptly. The pulse was small, 92 to the minute; respiration, 18; temperature, 95.3° F. (36.16° C.). The breath smelled strongly of camphor. There was no pain on pressure over the abdomen. Milk that was given was vomited and smelled of camphor. Vomiting was provoked by emetics. The patient went to sleep after three hours, and next morning her mind was clear, abdomen not sensitive, no headache, and no dizziness. Urine was first passed at 12 M. (the next day). It was acid, cloudy, but free from albumen. During the next few days violent spontaneous pain occurred over the left kidney, and both were quite tender on pressure. The urine contained a large quantity of gleucocytes, some red blood-cells, and much degenerated epithelium.

Cannabis Indica.—D. J. Leech[80, Apr.] considers Merck's preparation of the tannate of cannabine to be the best of the newer combination offered. Valieri thinks that cannabis indica will cure exophthalmic goitre. Edward Birch[6, Mar.] records a most satisfactory cure by the use of cannabis indica of 2 very pronounced cases, one of the chloral, the other of the opium, habit. He gave ½ grain (0.032 gramme) of the extract three times a day.

Cantharides.—In these days of antisepsis the after-treatment of blisters is too often improperly attended to. Saint-Philippe[100, Mar.19] recommends, before a blister is applied, that the urine be rendered alkaline by the internal administration of bicarbonate of soda, and increased in quantity by a diuretic. The danger from the use of cantharides is thus rendered less harmful, especially if the epiderm only is removed. Garcia Cainha[80, Feb.15] relates several cases of poisonous symptoms which arose after eating some birds, in the gizzards of which were found fragments of the *lytta vesicatoria.* John Reid[285, Apr.15] says that the symptoms of poisoning are easily kept under control, except the weakness and shaking of the limbs. He finds that bismuth acts well, and that the best remedies are cocaine, drumine, müllerine, with lime-water and milk.

Carbolic Acid.—On account of the great desirability of antiseptics in obstetrics, Budin,[100, July 4] as chairman of a committee, reports to the French Academy of Medicine in favor of allowing druggists to dispense carbolic acid (1- to 5-per-cent. strength) on the prescription of a midwife. J. R. Menzies[285, Sept.15] found that the mucous membrane was not numbed by a tablespoon dose of the acid. Leux[88, Oct.16] has found that four injections of a 2- to 3-per-cent. solution into the centre of a boil will usually bring about resolution. Max Kortüm[161, June] reports a case of necrosis in first phalanx of the thumb, and Lucas-Championnière[3, May 22] and Monod have both had cases of consecutive gangrene following its use. It seems especially liable to follow when there is poor circulation in the part. Th. Billroth[82, Oct.5] is quoted as publishing the statement that he has lately seen 4 cases of gangrenous fingers from the use of carbolic acid for insignificant injuries. He thinks it is a dangerous drug for the laity to have, and that it should be used only by a surgeon. As is well known, a troublesome eczema is often produced by carbolic acid. George Meyer[26, Nov.] recommends the use of lanolin in treating them, with the addition of a little cocaine if there is much itching. Equal parts of carbolic acid and sweet-oil, applied to a burn on the arm of a child 7 months old, put it into a stupor in two hours. Despite every effort of the physician, S. T. Richardson,[1, Nov.30] the child died in convulsions thirty hours after the application.

A. G. R. Foulerton[6, Jan.19] gives at length an account of a somewhat unusual case of this kind. The victim was a man 36 years old. The quantity swallowed was something less than 3 ounces (93.31 grammes), and was crude acid. When seen within one-half hour of the accident he was unconscious and collapsed; the teeth smelled strongly of carbolic acid; the breathing was shallow and slightly stertorous; the pulse weak; lips and interior of the mouth a dirty-white color. Sulphate of zinc by the mouth and injection of apomorphine each failed to provoke vomiting; so the stomach was washed out with warm water by the use of a stomach-tube. The first portions ejected were milky white. The patient died within twenty minutes after being brought to the hospital (within less than an hour of the accident). Details of the autopsy are given. C. Ferdinand Durand[170, Mar.] gave to a boy suffering from pin-worms a rectal injection of a pint of a solution of carbolic acid (1 to 50). In ten minutes the boy presented all the symptoms of collapse and was unconscious for nearly five hours. A woman took a teaspoonful of carbolic acid instead of castor-oil.[177, May 27] In five minutes unconsciousness came on: irregular pulse, finally slow and feeble; cold sweats and extremities, difficult respiration. She had already taken 30 grammes (about 1 ounce) of sulphate of magnesia. Swallowing was difficult and caused cramps in the jaws. Whisky, hypodermically, improved the action of the heart, and in three-quarters of an hour consciousness began to return. After two days the temperature was 37.8° C. (100.04° F.), but never higher. For a week the patient had pain in the neck and great difficulty in swallowing, but in a month's time had entirely recovered.

Carbon Dioxide.—Leyden[69, Dec. 30; 90, Mar.] reports recovery in a severe case of carbonic-acid poisoning, in which transfusion was used. V. Swiecicki[317, Mar. 16] reviews George Bonne's pamphlet on the fibrin ferments and their relation to the organism. The author adopts the theory of A. Schmidt, who considers fibrin to be the result of a fermentative process in the globulin of the plasma. Fibrin may thus be derived as a ferment intoxication; and in the various forms, both septic and aseptic, fibrin is present in the blood to a greater or less extent. He has found that carbon dioxide is a most important anti-fermentative agent in the formation of fibrin. As fibrin in living organisms is eliminated by the kidneys by the aid of carbon dioxide, the author considers that those substances should be administered which easily set carbon dioxide free in the organism. Here belong the carbohydrates, vegetable acids, and fluids containing carbon dioxide (especially alcohol). According to this view the principal advantage of alcohol in fevers is thus due to its property of yielding rapidly a large amount of carbon dioxide, which inhibits fibrin intoxication. Stifler[69, Aug. 15] explains the therapeutic action of the steel baths of Steben, which contain a large amount of carbon dioxide. The worthlessness of artificial baths in which water is charged with carbon dioxide is due to the fact that the CO_2 is not in combination, and there is therefore hardly any of the gas absorbed. If artificial baths are prepared, the water should be charged with CO_2 under high pressure. The carbon dioxide acts favorably in stimulating the cutaneous circulation and the peripheral nerves, and reflexly on the other organs. As there is a sensation of warmth produced by it, the bath does not have to be maintained at a high temperature, and the injurious effects of every warm bath can thus be avoided. Some of the CO_2

is absorbed, and, entering the circulation, acts as a direct stimulant. Since it seems proved (preceding page) that augmentation of CO_2 in the blood prevents fibrin intoxication in fevers, these baths seem to be indicated in cases of fever. Dujardin-Beaumetz[17, May 16] thinks that carbonated waters, as usually prepared, can contain micro-organisms, which may give rise to disease. It is recommended that the water be boiled or passed through fine porcelain before it is charged with the carbon dioxide.

Carbon Monoxide.—Litten[69, Jan. 31] reports a most interesting case of poisoning by this gas. The man was restored to life by continued artificial respiration, but developed at once the following symptoms: Complete motor and sensory paralysis of the right arm, with a deep and general gelatinous infiltration (in the latter very unusual symptom the case resembles the classical one of Klebs[20, v. 32]); reflex and electrical reactions were absolutely absent; partial recovery from the anæsthesia, with development of spontaneous pain. A workman,[39, Apr. 16] overcome by the vapor of burning coals, remained unconscious despite all efforts until transfusion was tried. Fifty cubic centimetres (1 fluidounce and 2 drachms) of a saline solution were injected into one of the veins of the arm. In five hours afterward the man showed signs of life, slept for ten hours more, and awoke in excellent spirits.

Cascara Sagrada.—H. H. Rusby[202, May 26] thinks the reason why persons are often disappointed in the effects of cascara sagrada is due to the fact that the preparations are prepared from the rhamnus Californica and not from the true rhamnus purshiana. On account of the large consumption of cascara sagrada during the last year there is now a dearth of the genuine bark. In order to prevent griping effects, at least one year should elapse before the roots are used.[25, Feb. 20] J. E. Taylor[202, Dec. 26] reports 7 cases treated for constipation by the use of one of the new fluid extracts of cascara sagrada. He believes that, while it has the same laxative effect as the old preparation, it will take many clinical tests to prove that it possesses the same tonic influence as the old form. Leon Rosenbusch[57, Aug. 4] prefers the extract, which he gives in doses of 2 to 12 grammes (½ to 3 drachms) as a purgative, and in smaller doses as a tonic.

Castor-Oil.—R. R. Mitchell[202] recommends a pleasant method of giving castor-oil. Equal parts of the oil, aromatic syrup of rhubarb, and cascara cordial are used.

Catha Edulis.—E, Egasse[67, Aug. 30] calls attention to the fact that the leaves of the catha edulis are used in Africa to increase muscular activity, overcome sleep, and as a prophylactic. Tests show the absence of caffeine. Flückiger has isolated an alkaloid, katine, which, in a pure state, probably will be a liquid.

Chimaphila Umbellata.—Abet[67, July 30] found chimaphila umbellata useful as a diuretic in 10 out of 11 cardiac cases. Though used for a month and a half, no accumulative action was observed.

Chinolin.—S. E. Henschen,[6, Sept. 14] of Upsala, discusses the causes of the so-called contrary effect of chinolin. In some cases there might have been a spontaneous rise of temperature, while in others the rise is attributed to an irritation communicated from certain parts of the body, as when diarrhœa or vomiting is produced.

Chloral.—After a most interesting review of the rise of chloral hydrate into popular favor, J. K. Spender[131, Mar.] next describes its fall and abuse. The writer is a strong advocate of its value in delirium tremens. In a case cited, in ten days 13 drachms and 20 grains (51.84 grammes) were given, 20 grains (1.30 grammes) being administered at first every three hours. In tetanus, on the authority of Lauder Brunton, large doses may be given without fear, and form a valuable treatment. Benefit from its use in epilepsy, chorea, and obstetrical practice is also referred to. Yvon[94, Sept.] discusses chloral and its derivatives, chemically, therapeutically, and pharmaceutically. At the end of the paper are given various prescriptions for the different purposes for which chloral hydrate is used. R. Lépine,[3, Jan. 30] following the but little used method of Peyraud, has found a mixture of chloral hydrate (0.050 to 0.100 gramme—¾ to 1½ grains—to the square centimetre of surface) and tragacanth of especial value in diabetes, where a vesication is required and cantharides cannot be used. Nicolai,[80, Feb. 15] has used it with good results in the night-sweats of phthisis, in the form of a solution of 2 drachms (7.77 grammes) of chloral hydrate in a tumblerful of whisky and water. At bed-time the patient's skin is well rubbed with a sponge moistened with the solution. In eclampsia, A. C. Free,[760, Nov. 14] after bringing on abortion, gave by rectal injection 90 grains (5.90 grammes) of the drug. No more convulsions occurred.

A drunkard on the verge of delirium tremens, took by mistake 180 grains (11.66 grammes) of chloral hydrate and the same amount of potassium bromide. Purdy[2, Nov. 9] washed out the stomach and injected coffee; the patient recovered. Brisine reports recovery from 205 grains (13.30 grammes) under the same treatment as above, together with injections of ammonia. A. Haffter[80, Sept.] has found that if it be heated in a closed vessel with glucose a very poisonous substance is produced.

Chloramid.—The new hypnotic, chloramid, introduced by v. Mering, is prepared by a patented process from about 2 parts chloral hydrate and 1 part formamide. Colorless crystals are thus obtained, soluble in 9 parts of water, and of a slightly disagreeable, bitter taste, which soon disappears. It costs about one-fourth the price of sulphonal. As it appears to be indicated in the same cases in which chloral hydrate are used, it is natural to compare its action with that drug; and while sleep, on the one hand, is not produced so soon, and the dose is larger than that of chloral, on the other hand, its action on the circulation is not so marked, its taste is not so disagreeable, and gastric disturbances are rare.[825, Oct.] In experiments by J. Hagemann and Strauss[4, Aug. 19] on 6 healthy students, 1 to 4 grammes (15 to 61 grains) produced in about two hours more of sleep than usual. In only 2 cases were there any after-effects—a slight headache. The drug was tried in 15 cases, including heart and lung troubles and nervous diseases. Careful observations of the pulse, temperature, and the frequency of breathing were made. The urine was found to remain unchanged. The results of their experiments showed the action of chloramid to be, in general, a good one, but useless in certain cases. The dose should be small at first, and determined for each patient, and there is no necessity of an increase. According to v. Mering, the drug is useful in senility, neurasthenia, phthisis, and diseases in which no great amount of pain is present. Hagen and Hüfler[84, July 28] undertook the use of chloramid at the suggestion of Strümpell, but feeling considerable mistrust in any new hypnotic. Their results in 26 out of 28 cases, with 118 doses, showed them, however, that the new drug possessed most useful properties, and that there were no after-effects on the action of the heart. Erich Peiper's[60, Aug. 8] observations cover 24 patients with 76 doses. He found that with 2- to 3- gramme (31 to 46 grains) doses sleep was usually produced in from one-half to one and one-half hours, and that headache, giddiness, and a feeling of fatigue frequently followed its use.

In a few cases in which a comparison was made between chloramid and chloral, the best results seem to have been obtained from the chloramid. E. D. Reichmann[60, Aug. 1] has found its use followed by no ill effects, either as regards the patient's feelings or in blood circulation. Its action on the intestinal tract is non-irritant, though in one of J. Hagermann's[4, Aug. 19] cases vomiting was produced in a patient, notwithstanding the fact that other medicines were unusually well borne and the diet was controlled. In the 14 cases in which D. R. Paterson[6, Oct. 26] used the drug, its action in 2 heart cases was especially encouraging. George L. Peabody[59, Nov. 16] calls attention to the fact that, as the drug contains over 76 per cent. of chloral hydrate, it would not be safe to use it in higher doses than 60 grains (3.90 grammes).

Chloramid—Chloralamid.—Kny[116, Aug.] states that chloramid is taken up by the free alkali of the circulating blood, and is slowly converted into chloral hydrate and formamide. Thus, only a small portion of the chloral acts at any one time. The formamide has the usual action of the amido group in acting on the vasomotor centres of the medulla and thus increasing the blood-pressure. He considers 3 grammes (46 grains) of chloramid to act as well as 2 grammes (31 grains) of chloral, and that, while its action comes on slower, the sleep is deeper and much more refreshing than that produced by chloral hydrate. His conclusions are drawn from 31 cases, covering a great variety of diseases. Kny strongly recommends its use as a hypnotic, except in those cases in which there is much pain or an intense excitement. Otto Halász[84, Sept. 14, 21] first reviews briefly the hypnotics in common use and then studies chloramid. This drug he has used in the case of 35 patients, of whom 4 were well and 31 sick; 194 doses were given in all. He experimented on himself by first taking for two days a gramme (15 grains) of the drug without any noticeable effect. On taking 2 grammes (31 grains) the hypnotic action became evident, and, in using 3 grammes (46 grains) on arising, sleep occurred in the morning. The cases in which he used it covered a great variety of diseases, including emphysema, heart failure, phthisis, neuralgia, bronchitis, alcoholism, etc. His conclusions, are that chloramid is a good hypnotic, but not one always to be relied upon, and that the usual dose is 2 to 3 grammes (31 to 46 grains). When sleeplessness is caused by pain or cough, its hypnotic action seldom occurs.

As there are no bad effects on the heart or circulation, it can be given in cardiac diseases. While dangerous symptoms were not produced by the dose mentioned (2 to 3 grammes—31 to 46 grains), after-effects of headache, dizziness, lassitude, and dryness of the throat were noticed in many cases. Vomiting was occasionally met with. No cumulative action was noted. Reichmann[5, Oct.] did not arrive at satisfactory results with it until he administered 45 grains (2.92 grammes) at a dose. In those cases in which the drug was given in the day-time without sleep being produced, headache followed its use. An editorial[80, Sept.] suggests that this drug should not be called chloralamid but chloral formamid, or formidate, as the drug is a combination of chloral and formamide. S. Rabow[169, Nov.] has made many researches on animals and man with chloralamid. He concludes that sleep is not produced as quickly as by chloral hydrate, but much more quickly than by the use of sulphonal. Its solubility is of great advantage. The dose is from 1 to 4 grammes (15 to 62 grains) and it can be given in capsules, alcoholic beverages, or tea. Three grammes of chloralamid equals in efficiency 2 grammes (31 grains) of chloral hydrate. Sleep occurs twenty-five to thirty minutes after its administration and lasts from six to eight hours. Ill effects were not noted, though failure to produce sleep is recorded in several cases.[68, Nov.15]

In order to investigate its action on the digestive tract, Konrad Alt[4, Sept.] gave 2- to 3- gramme (31 to 46 grains) doses along with some food, and three and a half hours afterward nothing abnormal was discovered on washing out the stomach. The patients had complained of no pain. Even with as large as 4-gramme (62 grains) doses no noticeable change has been produced in the sphygmograph tracings. Alt's observations cover 41 cases. Eight of the patients had simple insomnia and were unaccustomed to hypnotics. Two to 3 grammes produced, in one-half to one and a quarter hours, sleep lasting three and a half to eight hours. In 4 patients accustomed to hypnotics the dose was larger, 3 grammes (46 grains), and the sleep was delayed to one and three-quarter hours after the administration of drug. When sleep occurred, it seemed to be even sounder than in the above cases. In 5 out of 7 patients of insomnia, who suffered from pain and were unaccustomed to hypnotics or narcotics, sound and refreshing sleep was produced. The cases included the lancinating pains of tabes dorsalis and of intercostal neuralgia. To the 41 cases 196 doses were given. There were 12 failures, and 1 case in which the hypnotic lost its effect. In 11 cases headache and stupor occurred. No toxic symptoms were noticed. The sleep occurred one and one-half to one and three-quarter hours after taking from 1 to 4 grammes (15 to 62 grains), and lasted three to nine hours. The drug was also successfully used for its sedative action. In 1 case of chorea, in which arsenic had failed to effect a cure in fourteen weeks, the daily use of 1-gramme (15 grains) doses, three times a day, caused nearly an entire cessation of the movements in eight days. Halász[84, Nov. 27,'89] tried it in 31 patients, and found it a good but not absolutely certain hypnotic. It is inefficient in insomnia caused by pain or cough. Sometimes it causes headache, vertigo, dryness of the throat, and even vomiting. From a number of experiments on the arterial blood of man, dogs, and rabbits, R. von Limbeck[278, Aug.] derives the following results: Under the influence of an isotonic solution of the chlorates, the number of red corpuscles decreases decidedly, at a time when blood mixed with an isotonic solution of sodium chloride shows no such decrease; as the diminution of the number of the red corpuscles invariably occurs later than the brown discoloration, the toxicological action on the coloring matter of the blood is earlier than that on the red blood-corpuscles. The author concludes his paper by reviewing the different suggestions made to explain the manner in which the toxic effect is brought about.

Chlormethyl.—Debove[170, Apr.] has used this remedy with success in 8 out of 10 cases of sciatica, and a permanent cure in 60 other neuralgias.

Chlorodyne.—A young man committed suicide by taking an ounce (31.10 grammes) of chlorodyne. An editorial[6, Mar. 30] comments on the looseness with which such dangerous combinations are sold.

Chloroform.—Salkowski[69, No. 14,'88; 112, Feb.] has shown, in a series of experiments, that chloroform-water is a valuable antiseptic and germicide. Its use is recommended in the preparation of those solutions for subcutaneous injections which readily undergo putrefaction, the chloroform being allowed to evaporate before the solution is injected. It is also given internally in diseases of the digestive tract depending on the presence of micro-organisms. Led by these researches, Stepp[34 No. 3, '87; 59 June 8] used chloroform-water in croupous pneumonia, whooping-cough, typhoid fever, gastric ulcer, and psoriasis.

Though only used in 6 cases of typhoid fever, very encouraging results were obtained.[6 Mar. 9] Henry Shimer,[59 V. 36, p. 178] after giving inhalations of 6 ounces (186.62 grammes) of chloroform for alcoholic convulsions without much benefit, gave teaspoonful doses every fifteen to twenty minutes until six had been taken, when the convulsions ceased. O. Rosenbach[57 Jan. 6] gives inhalations of chloroform as a sedative in pulmonary disease, as in the dyspnœa of emphysema, œdema, and the nocturnal cough of phthisis. In true cardiac asthma and hiccough it is also valuable. Though extensively used, no bad results of any kind have occurred. Nussbaum[108 May 15; 9 June 23] uses chloroform perfumed with oil of cloves when the administration of the anæsthetic produces vomiting or is otherwise badly tolerated. Casualties are said to be greatly lessened by perfuming the chloroform. In order to thicken the ordinary chloroform liniments, Peter Boa[64 Feb.] suggests that the olive-oil be replaced by soft paraffin, and that a very good method of preparing such a liniment is to dissolve 1 ounce (31.10 grammes) of camphor in 5 ounces (155.51 grammes) of chloroform and soft paraffin until 10 ounces (311 grammes) be produced. In citing the case of a boy, aged 6, who died from the influence of chloroform, an editorial[6 Oct. 19] calls attention to two popular fallacies: (1) that as the child had taken chloroform (twice) before, it would enjoy immunity the next time, and (2) that the administration of chloroform is attended with no danger in children.

Chromic Acid—Chromates—Chrome-Yellow.—Klimesch[8 Sept. 19] reports a case of poisoning by a piece of bichromate of potash the size of a hazel-nut. Examination of the urine demonstrated that, even in lethal doses, the poison is very rapidly eliminated, and that, in spite of a lasting and considerable rise of temperature, the quantity of urea remained below normal—possibly was entirely absent. D. D. Stewart[9 Jan. 26] gives an interesting paper on the "Cases of Poisoning by Chrome-Yellow Used as Coloring Matter by Bakers," which attracted so much attention in Philadelphia. Two of the cases he records at some length: One, a widow aged 47,. when first seen had been eating the poisoned cakes almost daily for fifteen months, during which time she had suffered from severe headaches, mental and physical exhaustion, and occasional numbness and burning in the soles of the feet. She was emaciated and dyspeptic, and had palpitation of the heart and shortness of breath. Two months later a coarse tremor developed, the urine became albuminous, hyaline and granular casts were found, and her ankles became œdematous. These symptoms persisted for some six months longer, when she began to improve steadily under treatment. Kobert,[26 June] cites some medical compounds which when mixed together may cause an explosion. Among other substances, in a mixture of 1 part of chromic acid with 2 parts of glycerin there results an immediate explosion. Powdered picric acid detonates if mixed with anything else. Walter Fowler[2 May 18] relates that whilst applying a saturated solution of chromic acid to the tonsils of an emotional woman, she swallowed a drop or two of the acid. In half an hour there was violent pain in the epigastrium, agonizing vomiting of green, ropy fluid, sense of impending death, and collapse. She recovered under free stimulation. By compulsion, chromic acid has been used in the German army[50 July 27] in a 5- to 10-per-cent. solution for sweating feet, but, a case of poisoning having occurred from impure chromic acid, the strength was reduced to 5 per cent., except in very obstinate cases. Eighteen thousand soldiers were treated by this method in six months; 42 per cent. were cured, 50 per cent. benefited, and 8 per cent. unaffected. Applications should be made not oftener than once or twice a month, and if there be ulcerations on the feet, care should be taken to use a weaker solution.. J. William White[112 Nov.] has long been accustomed to cauterize papillary outgrowths of the genitals with chromic acid. Applications of cold water having failed to heal these vegetations in the case of a young woman, he applied, under ether, ½ ounce (15.55 grammes) of a solution containing 50 grains (3.24 grammes) of chromic acid. Twenty-seven hours after the application the patient died, the intellect remaining clear to the last. John Marshall found, on chemical analysis, that the renal and liver tissue contained chromium, probably in combination with sodium.

Cicutine.—T. D. Nicholson,[229 Aug.] following the recommendation of Burggraeve, has used 1-milligramme (0.015 grain) doses of cicutine in 2 cases of epilepsy, with apparent good results.

Cimicifuga Racemosa.—C. J. Rademaker,[279 Dec.,'86] after recording a proximate analysis of cimicifuga racemosa (Elliott), thinks that the medicinal properties consist in a crystalline principle. Four cases are cited by J. Craig Balfour,[6 Mar. 9] in which the tincture of cimicifuga (actæa racemosa) was used with great benefit in certain diseases of nervous origin, especially in those of a neuralgic character. He deplores the neglect of it, and thinks that it may often be used with benefit when other remedies have failed.

Cineraria Maritima.—Thos. Christy[826 Aug.] reports 2 cases in which a marked improvement followed the use of the succus cineraria maritima in cataract. Two to 3 minims (0.12 to 0.18 cubic centimetre) were dropped into the eye three times a day. In Venezuela this drug is extolled for the removal of cataract blindness, and it was here that one of the patients, a physician, named R. Mercer, was led to try it on his own eyes. Improvement followed its use.

Citrate of Caffeine.—T. Geraty[6 Feb. 2] records a case of poisonous symptoms produced by taking a dessertspoonful of citrate of caffeine. Nausea first came on, followed by semi-unconsciousness, grave depression, extreme pallor, relaxation of the muscles, slow and soft pulse, respiration slow and sighing. Emetics, brandy, and warmth restored her. (See Caffeine.)

Citric Acid.—Boymond[24 July 14] considers Langfelt's plan of adding citric acid to contaminated water a good one. One to one and a half grammes (15 to 23 grains) will sterilize polluted water in fifteen minutes.

Coal-Gas.—Katayama[25 Feb.] gives a new test for coal-gas poisoning. It consists of the addition to blood containing coal-gas of orange-colored ammonium sulphide, which produces a beautiful bright-red color, whilst normal blood turns greenish gray. The test may be made in this way: Dilute 1 cubic centimetre (16 minims) of blood to be tested with 50 cubic centimetres (2 fluidounces) of water; pour 10 cubic centimetres (2¾ fluidrachms) of this into a test-tube, and add, first, 0.2 cubic centimetre (3 minims) of orange-colored ammonium sulphide, and 0.2 to 0.3 cubic centimetre (3 to 5 minims) of 30-per-cent. acetic acid. Invert the test-tube several times, and the characteristic color will be seen.

Coca Erythroxylon—Cocaine.—As a volatile substance has been observed by Stockman I. Rusby in the coca in its native *habitat*, Frank Woodbury[144 Nov.] much prefers a native elixir, because any preparation made from the dried plant contains little or none of this active principle. A native elixir has been of excellent service in the treatment of typhoid fever, and Woodbury intends to make a full report on this subject. J. W. Perceval[6 Mar. 23] records a case in which the hypodermic injection of 5 drops of a 10-per-cent. solution of cocaine was followed in a child by a well-marked urticarial rash. Moizard[118 Nov., '86] mentions a violent case of cocaine poisoning produced in a boy of 4 years by the accidental administration of 4 grains (0.25 gramme) of cocaine. He was given chloral, and by the next day had entirely recovered. Morphia and nitrite of amyl, though to some extent antagonistic to cocaine,[617 May] seem to exert no effect in poisoning by this drug. Mosso recommends first the inhalation of ether or chloroform, to be followed by small doses of chloral hydrate. Zauchevsky, of St. Petersburg,[80 Feb.] has made an addition of great value to our literature on the drug by his investigations into the morbid changes produced by toxic doses. Microscopic examination in cases of acute poisoning disclosed all those alterations which occur in cases of fatal asphyxia. In addition, the lungs presented dilatation of the alveolar vessels, with extravasations and occasional collapse of the alveoli, and opaque swelling of the alveolar epithelium. In acute poisoning there were found opaque swellings of the liver-cells, and in the heart albuminoid degeneration of the muscular fibres, besides a number of other equally important alterations in its structure.

Two fatal cases of poisoning have been reported in Italy.[2 Feb. 16] In one of these cases 225 milligrammes (3½ grains) of cocaine had been injected hypodermically, and in the other 1½ grammes of the hydrochlorate (23 grains) had been taken through mistake by the mouth. Twenty grains (1.30 grammes), administered by mistake, caused the death of a male hospital patient within one hour.[6 Feb. 9] The *Lancet* considers this to be the first fatal case of cocaine poisoning recorded in England. There is given a description of the *post-mortem*, which, however, yielded no special lesions. Magnan[426 No. 4; 15 Mar.] concludes, from the observation of 3 cases of chronic cocaine intoxication, in 2 of which epileptiform convulsions were present, that it shows itself most clearly by hallucinations, with previous general disturbance of the senses, and that the action on the sensory organs seems to resemble alcohol, with the difference that cocaine acts on the cerebral cortex forward from the occipital lobes, while alcohol acts backward. The increasing use of this valuable drug[2 Feb. 9] for obtaining local anæsthesia has given rise to quite a number of cases in which poisonous symptoms were exhibited, though no death has occurred after the administration of the ordinary dose. Some are very susceptible; for instance, about 1/7 grain (0.009 gramme) injected into a rodent ulcer of the eyelid, in a man of 29 years, gave rise to paleness, gasping, stiffness of the legs, weak and frequent pulse, and clonic spasms. Such an idiosyncrasy is not common, but, with regard to the dose, it is generally agreed that not more than 3/4 grain (0.05 gramme) should be given hypodermically. James A. Myrtle[2 Apr. 6] reports that 3 drops of a 3-per-cent. solution of the hydrochlorate, instilled into each eye of a patient of his, immediately produced a sense of numbness in the back of the tongue and throat, palpitation of the heart, disposition to faint, and nausea almost to vomiting.

A. A. Armstrong[59 Apr. 27] believes that the prolonged use of cocaine in the nasal cavities is pernicious, since marked and troublesome hyperæmia and often extreme nervousness are produced. As isatropyl-cocaine is supposed sometimes to give rise to symptoms of poisoning,[26 Sept.] cocaine can be tested for this substance (Squibb), as pointed out by Stockman, by heating with strong hydrochloric acid. If we have pure hydrochlorate of cocaine, there is no change of color; if isatropyl-cocaine be present in part or whole, there is formed ecgonine and a brown, oily-looking body, which is decomposed isatropic acid. Amorphous cocaine may be recognized by the milky liquid which is produced when caustic ammonia is added.

J. Chalmers Da Costa[242 Mar.] read a very interesting paper before the Philadelphia Neurological Society[Feb. 26] on 4 cases of cocaine delirium. In all the cases the symptoms were produced by an injection of a cocaine solution into the urethra, the amount varying from 10 to 30 minims (0.66 to 2 grammes) of a 4-per-cent. solution. In one case there were hallucinations of sight and illusions of personality. In the discussion, F. X. Dercum remarked that as the urethra is very sensitive and is intimately associated with the nerve-centres, the locality must be taken into account in judging of the action of the drug. Control experiments should be made to determine this. E. N. Brush considers that the effect of the drug on many persons is to make them more talkative. A patient suffering from cancer of the breast was given an ointment of cocaine, 1 to 20.[6 Jan.26] During the two months the patient lived there was no pain nor any need of increasing the strength of the ointment. Zwaardemaker[54 July 1; 90 Sept.] finds that if sufficient quantities are applied to the mucous membrane of the nose, temporary anosmia is produced. The anosmia behaves equally to all scents, and is preceded by hyperæsthesia olfactoria. Sandras[14 Mar.31; 1 June 1] finds that coca wine is a relaxer of the vocal cords, as the cocaine paralyzes and deadens the tensor muscles,—a view not at all in accord with the experience of laryngologists. Inhalations of chloroform cause the voice to become normal, and if inhalations of tar and tincture of benzoin are used the voice increases. Laudtever[185 Aug.] considers its maximum dose by injection to be 0.015 gramme (⅙ grain), Decker 0.02 gramme (⅕ grain), and Haenel 0.03 gramme (⅓ grain).

Hunt[25 Feb.] thinks the mouth the most difficult situation in the body for its use, but that the drug is, nevertheless, of great value if applied judiciously. F. Saltzmann[496 B.26,p.154; 57 Apr.26] considers cocaine of especial use in minor operations where an Esmarch bandage can be used if desired; inhalations of chloroform may be added, but there is no need of producing complete unconsciousness; 0.11 gramme (1¾ grains) cocaine, in two injections into the gums of a vigorous but chlorotic girl 17 years old, gave toxic symptoms which Hänel[339 June 1] could not relieve with nitrite of amyl, cold to the head, and large doses of opium. An editorial[22 Aug.3] calls attention to a probable death from cocaine poisoning of a girl 17 years old. Lépine[3 Nov.21] has collected many cases in which serious or fatal symptoms have followed the use of cocaine. As an antidote, nitrite of amyl is recommended to relieve the vasomotor stimulation, and chloral for severe convulsions. Opium has proved of service. Not more than 3 grains (0.194 gramme) of cocaine should be injected at once, nor more than 6 or 7 grains (0.389 or 0.453 gramme) be applied to a mucous surface. For the avoidance of cerebral anæmia a horizontal, position, or inhalations of 3 drops of nitrite of amyl, are suggested. A writer calls attention[61 June 16] to the fact that the drug may be precipitated from solutions when they contain energetic bases or their salts. Therefore it is wise to put a label on the bottle giving instructions to shake such solution before using. Choreic movements were caused in a child by an overdose.[26 Apr.]

In order to extract teeth painlessly, John Wessler[116 Apr.] injected into the gum 0.04 to 0.07 gramme ($\frac{2}{3}$ to $1\frac{1}{10}$ grains) of cocaine. As toxic symptoms occurred, he combined the cocaine with antipyrin (1 to 12) as recommended by Martin.$^{116}_{\text{p.166,'88}}$ In 5 cases the injections were followed by abscesses, toxic symptoms, or necrotic changes. A case is reported$^{290}_{\text{Apr.16}}$ in which about 0.04 gramme ($\frac{2}{3}$ grain) of the drug was injected by Abadie into the lower eyelid of a woman, aged 71, for the removal of an entropion. As is usual, some of the solution escaped on opening the cellular tissue. On descending from the chair after the operation the patient staggered, her breathing seemed to stop, and her face became cyanotic. In a half-hour she spoke, but notwithstanding every care she died five hours after the injection. There was no autopsy. As the patient, three months before, had been unconscious for six hours, it is possible that apoplexy may have been the cause of death. J. Henry Ashworth$^{6}_{\text{Feb.9}}$ reviews a number of cases in which it has produced toxic symptoms, and adds a case where, after the injection of a grain (0.065 gramme) into the lip for the removal of a recurrent cancer, grave toxic symptoms came on, failure of the respiration being the chief symptom.

A. Wölfler$^{84}_{\text{No.18}}$ has collected from current literature 14 cases of poisoning, and has added 5 new ones from his own practice. In 1 of the quoted cases 1.25 grammes ($19\frac{1}{3}$ grains) was injected, followed by congestion about the head, rapid pulse, quickened respiration, and nervous symptoms. The author thinks the dose of cocaine should be smaller when given hypodermically about the head and face. In a patient of J. Bettelheim$^{113}_{\text{No.12}}$;$^{90}_{\text{July}}$ $\frac{1}{6}$ grain (0.01 gramme) of the hydrochlorate, hypodermically administered, produced unconsciousness, a pause in the respiration lasting twenty seconds, widely-dilated pupils not reacting to light, retention of urine, and hyperæmia of head and brain. L. Kayser$^{230}_{\text{July}}$ states that a hypodermic injection of 0.025 gramme ($\frac{2}{5}$ grain) in a young woman aged 23, of a nervous temperament, produced dilated pupils and automatic movements, as in a hypnotic state. Later on she was unable to give either her own name or the names of those with whom she was in daily contact, though she recalled events that happened to them in the last few years. Trismus and Cheyne-Stokes respiration were present in one case.$^{11}_{\text{Sept.}}$ Montalti$^{376}_{\text{No.3,'88}}$ reports a death in a young woman from 1.5 gramme (23 grains).

Charles H. Chetwood$^{59}_{\text{Aug.10}}$ reports a case in which symptoms of cocaine poisoning came on three minutes after the injection of about 1 drachm (3.90 grammes) of 4-per-cent. solution into the urethra, and lasted fifteen minutes. There were present tetanic spasms of the muscles, and there was subsequently no vivid recollection by the patient of what had passed while delirium lasted. T. R. Neilson[112 Aug.] applied an elastic ligature to the penis for circumcision and injected about 45 minims (2.77 cubic centimetres) of a 4-per-cent. solution. Symptoms of poisoning followed upon removal of the ligature. Winogradow[57 Oct. 6] adds another fatal case of acute poisoning to those already reported. The blood was found in a condition similar to that in poisoning with potassium chlorate.

Joseph Bettelheim[113 Mar. 24] reports at length a rather remarkable case. A man, 38 years old, tall and strong, was given a hypodermic injection containing 1 centigramme (1/8 grain) of cocaine. The injection was made into the forearm preparatory to scraping a serpiginous ulcer. The man bore the operation well, went home, but subsequently fell to the ground unconscious as though struck by lightning. The face was congested, the breathing strikingly irregular, and there was trismus. Thermic and mechanical irritation provoked convulsions. The patient recovered. Vinogradoff[509]; [6 Sept. 23] reports a result of the post-mortem examination of the body of a person who had received 22 grains (1.30 grammes) of cocaine in repeated rectal injections, and had died as the result of it. Death occurred from asphyxia in spite of the fact that tracheotomy was performed and artificial respiration employed. Before the operation in which the cocaine was administered per rectum the surgeon asked a colleague the dose of cocaine, and was told not more than 2 grains (0.13 gramme). The fatal termination led to the suicide of the distinguished surgeon who had employed the cocaine.

Cocillana.—Cocillana has been used by S. F. Landry[80 Jan.] in obstinate constipation. The dose was 10 drops. David D. Stewart[202 Oct. 10] quotes H. H. Rusby as thinking that there is danger of the total exhaustion of the ipecac-root owing to the large demand and the limited area in which it grows. As cocillana affects the respiratory organs in the same manner as ipecac, Stewart has tried the drug in 21 cases,—5 of acute and 11 of chronic bronchitis, 4 of broncho-pneumonia, and 1 of phthisis. Its action was satisfactory, as it seemed to render the cough less frequent and difficult, and the bronchial secretion less viscid. The average length of treatment was twenty-two days. The fluid extract is given in doses of 7½ minims (0.46 cubic centimetre) and the concentrated tincture in doses of about ½ drachm (1.95 grammes).

Cocoa-nut.—Parisi,[791] after eating the endocarpium and drinking the juice of the cocoa-nut, passed a large tænia. Thinking that the result was due to the nut, he used it as an anthelmintic with success in 6 cases.

Cod-liver Oil.—Gubb[14 Aug. 7] states that cod-liver oil forms a solution with an aqueous extract of malt, and that this combination is, therefore, the best mode of disguising the taste of the oil.

Philip[36 Mar.] stated before the Edinburgh Medico-Chirurgical Society that he had an emulsion made containing 75 per cent. of cod-liver oil with 40 minims to the ounce (2.46 to 29.57 cubic centimetres) of oil of eucalyptus. It is used in phthisis pulmonum. Seig[108 June 1; 9 Aug. 10] recommends the administration of cod-liver oil according to the following formula, which is said to agreeably disguise the taste of the oil and to make the odor resemble that of roast meat:—

Cod-liver oil, ...	℥lxx	(2.18 kilogrammes).
Creasote, ...	♏︎xl	(2.46 cubic centimetres).
Saccharin, ...	gr. iiss	(0.162 gramme).

A good way of administering cod-liver oil is to mix it with equal parts of lime-water and flavor with one of the essential oils.[211 Mar. 3] Daremberg[80 Feb.] has found by experiment that cod-liver oil administered to healthy guinea-pigs and rabbits produces, after varying intervals of time, death, with fatty perisplenitis.

Ippolitoff, as quoted by Theodore Maxwell,[15 Nov.] has found that colorless cod-liver oil diminishes, and yellow cod-liver oil and morrhuol increase, nitrogenous metabolism. The body increases in weight under colorless cod-liver oil, but a still greater increase from the use of lipanin (olive-oil + 6 per cent. oleic acid) was noted. The observations were made on 8 children, in each case extending over a period of nineteen days.

Coffee. — Landarrabilco[348] has employed a solution prepared with 25 grammes (6½ drachms) green coffee, the solution being allowed to macerate all night, in general nephritic colic and migraine. That a food in such common use as coffee may give rise to poisonous symptoms is shown by a case of Cohn,[116 Mar.] in which two cups of an infusion made of two handfuls of coffee produced intense general tremors, lasting, in spite of bromide treatment, twelve hours after all other symptoms had disappeared.

Colchicine.—Ch. Abadie[17 Aug. 22] has found 0.001-gramme ($\frac{1}{1000}$ grain) doses of colchicine, two to four times daily, very useful in scleroiritis, whether of gouty or rheumatic origin, even when all other remedies have failed. It is suggested that it should be tried in other local manifestations of these diseases.

Collodion.—Bazet[77 Oct.] reports a confirmatory trial of R. de Latour's method of diminishing heat production. Flexible collodion is painted over an inflamed surface, two or three coats being applied, and as soon as a fissure appears it is to be again painted. Erysipelas, erythema, and other inflammations of the skin were thus successfully treated, and improvement noted in from six to forty-eight hours.

Condurangin.—Condurangin[21 p.10] is a mixture of two glucosides found in condurango. Kobert is experimenting with it to see if it has or has not any specific action on carcinoma-cells.

Copper.—Schilling[41 Mar. 11] recommends an old remedy used in Bohemia for scabies, *i.e.*, a mixture of copper sulphate, pepper, and green soap. Moricourt[100 July 16] found by metal therapy that copper was the only metal to which a patient was sensitive, and on giving this drug in the form of the bromide a cure was effected. Danet[14 Dec. 14, '88] has witnessed a case of copper poisoning due to the handling, by a young lady, of vines which had been treated on three or four occasions with applications of a solution containing copper. Demoulin[25 Mar.] has treated croup successfully by the daily use of 40 centigrammes (6⅛ grains) of a copper salt. Stocquart records the case of tuberculous arthropathy cured by the use of a copper ointment, followed by the internal administration of the neutral acetate.

Creasote—Guaiacol.—Schetelig[41 Feb. 25; 826 Oct.] has found that a 20- to 30-per-cent. solution of creasote in almond-oil is well borne, but his preference is for guaiacol, as ¼ to ⅛ part of it is equal to 1 part of creasote, and on account of its purity it can be injected in a concentrated form. Within one-fourth to one hour after an injection, the creasote can be plainly tasted. Its positive value consists in a prompt and effectual antipyretic action. He continues to praise the hypodermic injections of pure guaiacol. Any specimen which has the odor of creasote should not be used. A single injection of 7 to 15 drops is made daily into the skin of the abdomen.

When the symptoms are less alarming the guaiacol should be given by the mouth. The same writer also notes the healing of a bed-sore over the sacrum as a manifestation of the relief of the general hectic symptoms. L. Jumon$^{152}_{\text{Sept.12}}$ thinks that creasote has done more for the treatment of phthisis than any other remedy. As creasote is not of constant composition, and not so well borne by the sick, guaiacol should be used when not acceptable to the stomach. Bourget, quoted by the above writer, uses external applications of guaiacol. Creasote, continued for six days, is credited by A. Atkinson$^{104}_{\text{Aug.10}}$ with destroying tape-worm. A woman being delivered of a child, the colored nurse gave her soot-tea. On inquiry, the writer found that this was a common means of checking hæmorrhage after labor. J. Sommerbrodt$^{67}_{\text{Aug.15}}$ has given as high as six 0.050 capsules a day, and one person took in the course of several months 2000 of these capsules. Karpow$^{209}_{\text{July 2}}$, recommends the use of guaiacol rather than creasote. He thinks that the solution containing the creasote should be charged with carbon dioxide, as by this means it is rendered palatable and does not interfere with the digestion. H. A. Hare$^{112}_{\text{Apr.}}$ relates several experiments on dogs to demonstrate the value of soluble sulphates in creasote poisoning. He used magnesia sulphate with excellent result. For inhalations in phthisis, Petresco$^{67}_{\text{Oct.15}}$ uses the following mixture, with a special inhalation apparatus: Eucalyptus, turpentine, and creasote, āā 20 grammes (5 drachms); iodoform, 0.50 gramme (7¾ grains), dissolved in sulphuric ether, 5 grammes (77 grains). Out of 34 cases treated in this manner, 19 improved, 10 remained stationary, and 5 died. Of the 19 put down as improved 6 could be considered as cured. Bouchard$^{25}_{\text{Mar.}}$ treated 93 phthisical patients with creasote; 54 of the patients were benefited and 25 apparently cured. J. Sommerbrodt has treated 5000 patients, giving the creasote in gelatin lozenges of 0.05 gramme (¾ grain) each, administering one lozenge on the first day and gradually increasing to six a day in the fourth week, treatment being continued for several months. Seitz$^{116}_{\text{Jan.}}$; $^{61}_{\text{Mar.9}}$ combines the creasote with cod-liver oil and makes an emulsion with saccharin. Marcard$^{13}_{\text{June}}$ reports the case of a baby 4 weeks old which was poisoned with creasote. The symptoms were pain, blue coloration of the tongue, which subsequently became reddish brown; the mucous membrane of the lips, jaws, tongue, and stomach were grayish (from the burning). The child had one bloody stool, and died in fourteen hours. It was impossible to administer nourishment to it.

Creolin.—Edward O. Otis[99, June 20] enters fully into the literature and value of creolin in medicine and surgery. He finds it a very unpleasant drug to take internally unless inclosed in capsules. His article gives the strength of different preparations of creolin, which are used by him as creolin gauze, absorbent cotton, and lint, 1 per cent. and 5 per cent.; creolin oil, 2 per cent.; creolin soap, 5 per cent. and 10 per cent., and creolin ointments, 2½ per cent. to 10 per cent. Otis has found that 1 per cent. to 2 per cent. of creolin mixed with iodoform will deodorize it. The application of a 2-per-cent. solution of creolin to a wound made by an operation for hernia is reported by Cramer[9, Feb. 9] to have given rise in three days to an eruption resembling that of scarlet fever, accompanied by thirst, fever, and itching of the skin. The urine had a strong carbolic-acid odor. The patient, a boy, recovered. Eight ounces (248.82 grammes) taken with suicidal intent by a strong man did not kill, and, in fact, produced only moderate symptoms of poisoning.[4, Aug. 12; 5, Oct.] Ignaz Jurjesz[512, No. 52, '88; 5, July] has successfully used a solution of 5 to 6 drops of it to a pint (½ litre) of water as a lotion in the treatment of ear diseases. R. Otto and H. Beckurts[575, p. 287] have made an examination of the constituents of creolin. A great advantage afforded by the drug is the fact that it protects the party from carbolic-acid and corrosive-sublimate poisoning. In using this drug, it must be remembered that there are several products which go by the name of creolin, and that it is not a chemical compound, but a mixture of various substances. According to Th. Weyl,[41, Apr. 4] Artmann's and Jeyes' preparations resemble each other only in name, and experiments were made to show the relative poisoning properties. L. A. Stimson[1, Feb. 2] has used with good results the ordinary gauze purified and wrung out of a 2-per-cent. solution, and he finds that, chemically, it closely resembles "soluble phenyl," a patented disinfectant.

Plenio[116, Jan.] finds that when creolin is mixed with water a sort of emulsion is formed, and instruments in this solution are difficult of recognition and become slippery and hard to hold, as if covered with soap. Schwinz[758; 2, Nov. 9] found that in 8 out of 10 cases creolin was useless in ophthalmo-blennorrhœa neonatorum, but that in 11 cases of thrush and Bednar's aphthæ the washing of the mouth and pharynx with a 1-per-cent. solution healed the eruption in from five to seven days. It is also recommended as a dressing for erysipelas of the navel. Lebovicz[85, July 11] finds that the drug will remove the unpleasant odor of cancer, and that as a hæmostatic it is of great value. If topical applications to mucous membranes cause pain, a solution of cocaine should be used five minutes before its application. For external use 1 part of creolin is best mixed with 50 parts of boric acid. Its use does not injure the instruments or irritate the hands. Max Körtum[82, July 20] recommends a 2-per-cent. solution for the instruments and hands, and a ½-per-cent. solution for use in the usual treatment of wounds. Delbreil and Lemoine[181, Dec.,'88] have found a wash, composed of 7 drops in a litre of salted water, very useful in ozæna. Rosin[4, Sept.2; 5, Apr.] used 7 to 8 quarts (7 to 8 litres) of a 2-per-cent. solution *per vaginam.* Vomiting, subnormal temperature, and death from collapse followed. Rosin[4, Sept.2] sustains his assertion that the case reported by him was one of creolin poisoning against van Ackeren,[4, No.33] whose case differs from his only in an additional albuminuria. Max Kortüm[116, Dec.,'88] is led, by his excellent results with Pearson's creolin and the only recent failures with it, to believe that adulterated, imitated material is to be made responsible for this and possibly for the toxic effect in Rosin's case. H. Cramer reports a case of creolin poisoning (this one with favorable termination) in a boy treated with creolin lotions after rapid operation for hernia. A scarlatinous rash appeared, with constitutional symptoms and dark urine, with carbolic acid and slight albuminuria. After suspension of the creolin application the symptoms rapidly abated. Jessner[41, July 11] thinks that if one compares creolin with the other antiseptics in common use in the following points, viz., its solubility, volatility, irritating poisonous properties, corrosiveness, and the cheapness, carbolic acid and bichloride will be found to be inferior. A chemist has lately put on the market a creolinum purissimum, which keeps better and is of more constant composition than ordinary creolin. A 1-per-cent. solution is a good deodorant for iodoform. Its use has become almost a necessity in obstetrical practice. As an oily feeling is given to the finger, a vaginal examination can be made without the use of oil.

F. Spaeth[34, Apr.9,16] has continued his experiments with creolin as reported in the last ANNUAL, and finds for it a wide field of usefulness in obstetrical and gynæcological practice. As idiosyncrasies exist in regard to its use, 12 to 15 drops are put in a litre of water, and the strength of the solution is increased at each application by 5 drops until the desired strength has been found. Pearson's creolin was used, and is supposed to possess toxic properties in a minimum degree. Neuhaus[41, July 11] finds it of little use in the treatment of gonorrhœa of men, but valuable in the treatment of that disease in women. Stille-Ihlienworth[383, No.4,'88] reports how 5 persons, he among them, suffered from various symptoms, such as headache, malaise, loss of appetite, vomiting, and increase in pulse-rate, from the fact that 1- to 1½-per-cent. solution of creolin was left standing uncovered in a room where they were all assembled. To the use of creolin Roux[197, June] thinks that he can attribute in certain cases diarrhœa and loss of weight, without, however, diminution of the appetite. When applied to mucous surfaces it is an irritant, and when administered internally the taste may persist during the whole day and give rise to eructations. Cramer[116, Sept.] reports a case in which a ½-per-cent. solution used to syringe the nasal cavity caused carbolic-acid urine, a chill, followed by a temperature of 40.5° C. (105° F.), dyspnœa, and collapse.

A man aged 30 took about 250 cubic centimetres (8½ fluidounces) of pure creolin; as vomiting soon followed, v. Ackeren[4, Aug.16] was unable to tell the amount absorbed. The following symptoms were present: unconsciousness, repeated vomiting, with well-marked odor for twenty-four hours, the odor remaining still longer on the breath, and great thirst. The urine at first contained a trace of albumen, and was of the same color as in carbolic-acid poisoning. In two days the vomiting ceased, the liver and spleen were notably increased in size, twitching in the upper extremities was noticed, the specific gravity of the urine was high, and much albumen and blood were present. On the third day jaundice appeared. As soon as albumen disappeared from the urine the symptoms seemed to improve. Cresol could be detected for nine days. Later on, an anæsthetic spot appeared in the distribution of the radial nerve.

Cresol.—Nencki,[814, Apr.] the originator of salol and betol, has prepared analogous compounds from cresol. These are three in number—ortho-cresol salicylate, meta-cresol salicylate, and para-cresol salicylate. They are identical with salol in regard to their antiseptic properties, but preferable to that drug when the intestinal tract is to be reached, as they are just as antiseptic in their action, but more innocuous.

Croton-Oil.—Schulz[116, Feb.] reports the following case: A student chewed about one-quarter of a seed, and spit out the rest on account of the disagreeable taste. In fifteen minutes the oil began to take effect, and in a few hours produced ten large, watery stools, with intense colic and tenesmus. The weight of one-quarter of a seed, 0.03 gramme ($\frac{1}{2}$ grain), is equal to 0.06 gramme (1 grain) of oil, and only a minute portion could have been extracted.

Curcas.—Schnell and Lure[46, May] report several cases of poisoning with the seed of the large spur-nut of India (*Jatropha curcas*). The seeds contain an oil called oil of curcas (infernal oil). It is colorless, odorless, of a sweet taste, not acrid, slightly soluble in water. According to Bouis, it contains a special fatty body, the acid of which has been called isocetic acid. The oil is less energetic than croton-oil; 10 to 15 drops are required to produce purging; it has no rubefacient action on the skin. It appears that the oil extracted by expression is less powerful than that extracted by solvents (ether and sulphide of carbon). The oil acts as a drastic purgative and the seeds have emetic properties. In the 3 cases given the symptoms came on in from ten minutes to half an hour after the ingestion of the seeds, and they were those of gastro-enteritis, with vomiting and coldness of the extremities. Recovery in each case followed.

CATALOGUED
NOV 7 1890
E. H. B.

Cynara Scolymus.—The garden artichoke possesses, according to W. W. Lane,[80, Feb.] diuretic properties, and is useful in ascites.

Dieffenbachia Rex.—Fred Farrow[2, Dec. 3, '89] mentions the case of a boy, 3 years old, who ate a small piece of the spadix of the dieffenbachia rex. Ten minutes after he was found with swollen tongue, dribbling saliva, pulse 130 and irregular, and pupils slightly dilated. The next day the child was well.

Digitalis.—Huchard[3, July, 8] agrees with the assertions of Potain and Sée that digitalin acts as a diuretic. For this purpose, however, he much prefers the crystalline to the amorphous form. The dose should be somewhat higher than that usually employed, that of the amorphous variety being 0.003 to 0.004 gramme ($\frac{1}{20}$ to $\frac{1}{16}$ grain) and the crystalline 0.001 gramme ($\frac{1}{64}$ grain) at a dose. On the other hand, Bardet[3, July, 8] considers the dose of the amorphous and crystalline variety to be the same. Armand[14, Nov. 8] declares that tanghinine, one of the active principles of tanguin, resembles crystallized digitalin very closely. It is, however, of constant chemical composition.

Dimethylxanthin.—Kossel[80, Sept.] has found a new base in an alcoholic extract of tea, which he has called *dimethylxanthin.* It differs chemically from theobromin, paraxanthin, and xanthin.

Dioscorea Villosa.—The root of the wild yam has been found by J. V. Shoemaker,[59, June] to possess emetic and diaphoretic properties. In hepatic torpor and cirrhosis of the liver it is of undoubted value, according to this writer.

Elixir of Life.—All who may be interested in the so-called "elixir of life," or testicular fluid, are referred to the secular press of July and August, and to the following articles: Brown-Séquard,[648, July 3; 6, July 20] Henry P. Loomis,[59, Aug. 24] T. B. Greenley,[224, Sept. 14] J. M. Fort,[85, Sept.] A. Coriveaud,[188, July 21] H. C. Brainerd,[186, Oct.] E. H. Anderson,[74, Sept.] J. I. Taylor,[74, Oct.] M. G. Variot,[648, July 17] Winslow Anderson,[77, Sept.] John S. Rivera,[186, Oct.] William A. Hammond,[1, Aug. 31] society proceedings,[105, Nov. 16; 3, June 6] and the following editorials: *Weekly Medical Review*, July 20; *Medical Record*, August 24th; *Medical Age*, August 26th; *British Medical Journal*, July 27th; *Times and Register*, August 17th; *Weekly Medical Review*, July 13th; *New York Medical Journal*, July 20th.

Embelia Ribes.—C. J. H. Warden[26, Mar.] is quoted as having found the active principle of embelia ribes to be embelic acid. Ammonia forms salts with this acid, which, when administered in 3- to 6- grain (0.2 to 0.4 gramme) doses, is tasteless and a good tænicide. S. F. Landry[80, Jan.] has used embelia ribes in protracted indigestion. The peristaltic action of the intestine is hindered by its use.

Ephedra Vulgaris.—Wriese[8, May 30; 9, July 6] has made a series of experiments with ephedrin and pseudo-ephedrin, the two alkaloids of the ephedra vulgaris. The mydriatic action of the pseudo-ephedrin is the more constant. Instillation of a few drops of a 10-per-cent. solution causes the pupil to enlarge in about half an hour, and to remain in this condition from seven to eight hours. Neither accommodation, refraction, nor sensibility of the conjunctiva or cornea was affected by its use.

Ergot.—C. Tanret[209, May 28] has obtained from ergot a substance which he calls ergosterin, on account of its similarity of composition to cholesterin. The method of preparing it is to exhaust the ergot with alcohol, allow the alcohol to evaporate, and treat the residue with ether, which dissolves the ergosterin. H. Thompson[217, Mar. 16] has tested cornutine in 3 cases of labor, during the period of expulsion, in 21 cases of atonic *post-partum* hæmorrhage, and in a number of cases of metrorrhagia and menorrhagia. His results are as follow: 1. Its employment in *inertia uteri*, during parturition, cannot be recommended as effectual. 2. It is of especial value in atonic *post-partum* hæmorrhage, and in the hæmorrhage following an abortion. For this reason its administration before labor is possibly commendable. 3. The preparation acts promptly in the metrorrhagia and menorrhagia that occur in consequence of endometritis, metritis, or other diseases of the uterus or its appendages. Cornutine can be given hypodermically in doses of 0.002 to 0.007 gramme ($\frac{1}{32}$ to $\frac{1}{10}$ grain), or 0.004 to 0.010 gramme ($\frac{1}{16}$ to $\frac{1}{6}$ grain) when taken internally. A solution usually gets milky in from eight to fourteen days, and it is then useless. Injurious effects were never noticed. D. W. Prentiss,[61, June 30] points out a peculiar depression of spirits, with hysterical phenomena, in a woman who took ergot.

Erythrina Coralloides.—Altamirano[678, Oct.] has studied the physiological action of erythrina, which is found in the seeds of the coralin. Its action appears to be exerted on the motor nerves, and it is poisonous to the higher animals. The crystals appear as delicate, colorless needles.

Eschscholtzia Californica.—Ter-Zakariantz[116, Mar.] has made therapeutic experiments with an alcoholic extract of eschscholtzia Californica in 13 mixed cases, and finds it a valuable and harmless somnifacient. As an analgesic, it seems to possess curative powers; 2.5 to 10 grammes (38½ to 154 grains) a day are given. It may be well to remember that this drug contains the alkaloid, morphine.

Eseridine.—See Physostigma.

Eucalyptus, Oil of.—J. Roussel[785, Mar. 1] has used with success, in the treatment of phthisis, hypodermic injections of 1 part of the oil of eucalyptus in 4 parts of pure olive-oil.

Euphrasia Officinalis.—G. M. Garland[99, Nov. 7] points out the almost forgotten value of the tincture in the treatment of head colds, provided the euphrasia be taken at the beginning of the attack; 10

drops every second hour are given. Its use in the acute coryza of children is recommended on account of its agreeable taste, and because it does not disturb the digestion.

Exalgine.—See Methylacetanilid.

Filix Mas.—J. O. de Man[116 Jan.] does not use the newer anthelmintic remedies, but relies on the virtues of filix mas; 14 to 30 grammes (3½ drachms to 1 ounce), a larger dose than is usually administered, is given in capsules. In 27 cases the worm—usually a saginata, or mediocannellata—was expelled, with its head. Only in 3 cases, in which the first dose was vomited, was it found necessary to repeat the medicine. In a few cases diarrhœa followed, which, however, was of short duration. Alkiewicz[783 May; 26 Oct.] reports a case of poisoning by 20 grammes (5 drachms) of an ethereal extract, which were taken at 8 A.M.; ten hours later symptoms of profound collapse, with vomiting and tremors, appeared. On the third day intense jaundice developed, which lasted for several days and disappeared spontaneously. It is pointed out that this case forms a warning against the use of such large doses as are recommended by De Man.[116 Jan.]

Ferrum.—John A. Ouchterlony[224 Nov.] read a paper on the albuminate of iron before the Louisville Clinical Society, October 22d. He finds it especially serviceable when anæmia and debility are associated with weak and irritable digestive organs. Boy-Teissier[46 Feb.] has used with good results the sesquibromide of iron in chlorosis, hysteria, and, in fact, in all diseases in which there is anæmia with nervous symptoms. W. W. Jaggard[80 Jan.] thinks that often more iron is administered than can be properly assimilated by the system. The tr. ferri chlor. is the preparation of iron which the author thinks is usually given in too large doses. Attention[61 Mar.] is called to the fact that if potassium chlorate is added to the syrup of the iodide of iron, free iodine will be liberated. This decomposition takes place more readily when light is present or when the solution is heated. A case of death is reported due to poisoning by the iodine thus liberated. Jolly[26 May] claims to have proved by experiment that iron exists in the blood only in the form of a phosphate. In order that there shall be no drain on the system, Ch. Lecerf has prepared a soluble citro-phosphate of iron for the production of this salt. Its administration is not followed by constipation.

Formic Acid—Arrow-Poison.—Stanley[6, Ap.13] discovered that the natives of the Lower Congo district derive the poison for their arrows from red ants. The insects are dried, powdered, cooked in palm-oil, and the composition smeared on the arrow-points.

Gelsemium.—G. F. Schreiber[149, Dec.] considers that gelsemium is not enough used by physicians. It is administered by him as a febrifuge in typhoid fever and, combined with veratrum viride, in pneumonia. He recommends it to control a hysterical patient or relieve a cough. The tincture from the green root, in doses of 2 to 20 drops, has proved most reliable. A. S. Myrtle[3, Feb.16] thinks that a change should be made in the nomenclature of gelsemin, the dose of the extract of which is $\frac{1}{2}$ to 2 grains (0.032 to 0.13 gramme), and gelsemina, the dose of which is $\frac{1}{60}$ to $\frac{1}{20}$ grain (0.001 to 0.003 gramme). A chemist, by dispensing the hydrochlorate of gelsemina instead of the extract of gelsemium, nearly caused the death of a patient of Myrtle's. W. Sinkler[80, June 16] thinks that 15 to 25 minims (0.92 to 1.54 cubic centimetres) is an unsafe quantity to be given at a single dose, as recommended by a recent writer.[80, Nov.15,'86]

Geranium Maculatum.—John V. Shoemaker[207, Oct.] adds 10 new cases to those already reported by him, showing the value of geranium maculatum in the treatment of incipient phthisis, hæmoptysis, and as a hæmostatic and general astringent.

Glucose.—Dujardin-Beaumetz[10, Jan.16] has performed Sée's experiments with lactose as a diuretic, and has found it to act well, but discovered that glucose, in doses of 100 grammes ($3\frac{1}{4}$ ounces), acts in the same manner. A good way of giving the glucose is to dissolve it in milk. In order to show that, when given in this way, it is not the milk which is the diuretic, he states that the patients had long been accustomed to taking milk, and that there had been no diuresis produced before.

Glycerin.—Walter Chrystie[112, Feb.] states that a good plan for giving enemata of glycerin is to attach a syringe to a small soft-rubber catheter, and, having introduced the catheter 4 or 5 inches (0.10 or 0.13 metre), to then empty the syringe. Fewer failures are noted on account of the glycerin being above or in direct contact with the fæcal mass. R. Lépine[8, Jan.30] does not approve of the use of glycerin enemata in internal hæmorrhoids. Niesel[69, May 16] does not consider the results which he has had in 100 trials in 40 different cases as satisfactory as one would expect from the mass of testimony in favor of the glycerin enemata. Its action, he says, is much limited, and even in the favorable cases it is not always prompt. The price of the suppositories, he thinks, is also against their general introduction. Jaroschi[113, June], relates how a person, having read that glycerin was good for diabetes, took large quantities of the drug. Symptoms similar to *cholera nostras* appeared. The diagnosis was obscure until a publication by Ritzert was seen, which showed that the common glycerin of the shops contained large quantities of arsenic. M. Schmelcher[116, June] has tried both the suppositories prepared by the addition of stearin and those put up with cacao. With the first preparation, in 208 cases in which the results were noted, in 136 the desired effect was obtained and in 72 there was failure. The second kind of suppositories yielded better results, there being only 53 failures out of 230 trials. V. Idelson, after reviewing an article by Mïlëëff on the use of small glycerin enemata, quotes George Grewcock as having accidentally discovered that a piece of cotton-wool the size of a nut, well saturated with glycerin and put into the rectum, will produce a copious motion in a short time.[2, Dec.] By experiments, Herman[2, Dec. 15] has found that if the vaginal secretions be scanty the local use of glycerin increases them, but if the secretions be abundant they are not affected by the application of the glycerin. Among some of the indications for glycerin enemata, A. S. Polübinsky[586, Nov.], calls attention to their use in persons who will not go to stool on account of the difficulty and pain experienced in defecation. Here the glycerin seems to act as a lubricant. Fourteen papers are quoted by the writer in reviewing this subject. G. H. Burford[6, Dec. 15] states that toxæmic symptoms may be suddenly produced by the use of ordinary enemata. A solution of some of the products of decomposition may take place, and a diffusible septic poison thus be introduced into the system by means of the lymph- and blood- vessels in that neighborhood. A rash may appear in these post-enemal cases, and, from appearances, cases have been pronounced scarlatina or rötheln. No such symptoms or rash, however, have been observed in glycerin enemata, the amount injected being too small. W. B. Moore[284, July] reports that he has used glycerin internally in the gastric and intestinal disorders of children since he read of the experiments of Kulus, showing the anti-putrefactive properties of the drug. Glycerin will also stop the souring of milk, and is therefore a valuable aid to the diet of bottle-fed children.

The results in the 33 cases in which Carl Lüderitz[4 Apr.1] has used the drug have not been as successful as he could wish. He attempts to explain the different theories of its action.

Guaiacol.—See Creasote.

Hamamelis.—Hamamelis has been much used in America, but it has been introduced abroad[6 Feb.23] only of late years. A. De Watteville speaks of its value in mild cases of hæmorrhoids, and a French writer,[270 July] in an editorial, speaks of it as almost a specific in varices and hæmorrhoids.

Hedeoma.—M. O. B. Wingate[99 May 30] reports the case of a woman who, in order to produce abortion, took 1 teaspoonful of oil of pennyroyal and $\frac{1}{2}$ teaspoonful of the fluid extract of ergot at a dose. In an hour she was unconscious; pulse small, respiration quiet, extremities cold, pupils slightly dilated. She had several convulsions, with well-defined opisthotonos. A hypodermic injection of morph. sulph. gr. $\frac{1}{4}$ (0.016 gramme), atrop. sulph. gr. $\frac{1}{120}$ (0.0005 gramme), was administered, heat applied, and milk given. By the next day she had nearly recovered from the effects of the drugs. No uterine action was provoked.

Hoàng-Nàn.— Sherston Baker[2 Mar.10] states that hoàng-nàn is a plant indigenous to Tonkin. It was brought to Europe by missionaries, and highly recommended in hydrophobia, snake-bite, leprosy, and certain skin diseases. The powder is given in doses ranging from 15 centigrammes to 2.50 grammes (2 to $38\frac{3}{4}$ grains), the variation being due to the fact that the bark is not always free from inert suberous matter. The ingredients of the medicine are alum 1.5, realgar 1.5, and hoàng-nàn 2.5 parts. The last may be used alone. The mixture is first reduced to a powder, moistened with vinegar, and formed into pills. After the bite of a rabid or poisonous animal, a dose of from 3 to 4 grammes (46 to 62 grains) should be given with weak vinegar. In healthy persons it causes fatigue, general indisposition, vertigo, tingling of hands and feet, involuntary movements of the jaws, etc. The absence of these symptoms shows the presence of a poison, and its administration must be continued till they appear.

Hydrargyrum.—Semmola[288 Sept.15] has been making some interesting observations in regard to the amount of hæmoglobin present in syphilis in relation to the benefit derived from mercurial treatment. He cites what he calls three incontestable facts: (1) that if a syphilitic patient has no treatment, the quantity of hæmoglobin in the blood will diminish from time to time; (2) that if mercury be given to animals or persons not suffering from syphilis, the amount of hæmoglobin will be diminished in a few days; (3) that if a syphilitic person who shows that the amount of hæmoglobin is diminishing be put on a mercurial treatment, an increase in the amount of hæmoglobin can be determined at once, and very markedly in the course of seven or eight days. From these facts Semmola thinks we have a valuable indication as to just when our mercury ceases to do good, and therefore should be stopped, and also as a therapeutic test for syphilis where the symptoms are obscure. These remarks hold equally good for the treatment of many other chronic diseases, but all of the alteratives do not show the increase in hæmoglobin so rapidly. Here, instead of eight days, as in the case of mercury, several weeks may be necessary in order to prove the advantageous working of the drug. Merget[200, July 14] describes a method of testing for mercury in animal secretions by which he was able to detect 0.00001 gramme (1/6400 grain) of mercury in 100 cubic centimetres (3½ fluidounces) of liquid. He[1127; 70, Apr. 14] thinks that mercurial vapor, when inhaled, enters the blood in the metallic state and not as an albuminate, and proposes to treat syphilis by hanging flannel impregnated with mercury around the neck. The metal volatilizes, and is absorbed by the pulmonary mucous membrane. He denies that gray ointment can penetrate the healthy skin. P. Carles[70, July 14] approves of flannels prepared with mercury in such a manner that there will be a constant vaporization and absorption of the drug by the skin. Stukovenkoff[586, No. 4; 14, Apr. 7] employs the benzoate of mercury with success in venereal diseases, in pill, subcutaneous injections, and external applications. For injections, mix 0.20 centigramme (3 grains) of the salt, 0.05 centigramme (¾ grain) of sodium chloride, with 30 grammes (1 ounce) of water. Inject about 6 milligrammes (1/12 grain) daily into the buttock. The slight burning which may occur can be avoided by adding cocaine to the solution. Syphilitic manifestations rapidly disappear,—roseola after three to ten injections, papules after six to fifteen, tuberculous syphilides after eight to ten, and periosteal growths and gummata after twelve to twenty-four. Internally, pills of 0.01 to 0.02 gramme (⅙ to ⅓ grain) are administered, and 0.04 centigramme (⅗ grain) may be given during the day. The treatment is less rapid than by injection. Ulcers are dressed with a solution of 1 to 1000. In gonorrhœa, urethral injections of 1 to 10,000 to 1 to 5000 act well.

Edouard Salomon[256, Sept. 10] gives some interesting formulas for the purpose of securing stability and a non-toxic action to solutions of the bichloride without any loss of their usefulness. If sodium chloride, with a little hydrochloric or tartaric acid, be added, the bichloride solution will not undergo decomposition, even though it be brought in direct contact with albuminoids, and its antiseptic power will be much increased. In order to give the solution a non-toxic action, enough sulphate of cadmium or copper is added to produce vomiting if the solution should be taken by mistake. Eosine may be added for the purpose of imparting a peculiar color and thus prevent its being taken by mistake. These drugs in no way interfere with the efficiency of the corrosive sublimate. In order to prepare a solution of 1 to 2000 strength, 1000 parts water, ½ part bichloride, 80 parts sodium chloride, ½ part sulphate of cadmium, and eosine to color, are used; or the solution may be prepared by using 1000 parts water, ½ part bichloride, 1 part sulphate of copper, 5 parts of tartaric acid, and 100 parts sodium chloride. The sulphate of copper will impart a blue color; so there is no need of adding any coloring matter, as in the first solution, which would remain colorless if the eosine were not added. According to Jorissenne,[67, Aug. 16] the best antiseptic for the treatment of erysipelas is the bichloride of mercury with a basis of a mixture of cacao-butter and vaselin. Petresco[67, Oct. 15] treats variola, measles, and scarlatina with the internal administration of the bichloride; and in the treatment of variola and measles he uses, in addition, a sulphur ointment externally. François Scalji[14, Oct. 1] has found that a weak solution of corrosive sublimate, if heated to a temperature of 45° to 50° C. (113° to 122° F.), will act as well as a much stronger solution, if applied at the ordinary temperature. He thinks by this means that we can avoid the caustic and toxic effect of the bichloride without, in any way, interfering with its efficacy. V. C. Vaughan[99, Jan. 3] adduces strong evidence to show the value of mercuric chloride as a practical disinfectant. Mercuric albuminate is soluble in water, but it is more freely soluble in the excess of albumen in blood-serum. Gelatin cultures of the cholera bacillus, or from the green stools of the diarrhœa of infants laden with undigested albumen, were disinfected by a 1 to 1000 bichloride solution. In order that solid fæces may be sterilized, they should be previously broken up and the disinfecting fluid be then applied.

William B. Hills[99, Feb.] claims that the bichloride undergoes chemical change when in contact with organic matter, and that it is immediately converted by albumen into an insoluble albuminate. A small quantity is soluble in excess of albumen, but is likely to be at once decomposed, in masses of excreta, into the insoluble sulphide by the sulphuretted hydrogen present. Robert T. Morris,[56, June 30] writes that the precipitation by albumen spoken of above may be avoided by adding tartaric acid and ammonium chloride to the bichloride, thus getting a solution which is stable in the presence of albuminous matter. De Renzi[185, Apr.] proposes to treat mercurial stomatitis with mercury. He relates 2 cases in which recovery quickly followed. He explains this apparent anomaly by saying that the bichloride is not the direct cause of the stomatitis, but simply so alters the nutrition of the mucous membrane that the micro-organisms, the cause of the inflammation, find a fit soil. A bichloride gargle destroys the microbes and cures the malady; a solution of 1 to 200 was employed daily. C. R. Illingworth[26, Aug.] gives a simple method of preparing the biniodide of mercury and then the strength of the different solutions for its local use. Internally, it is given in doses of $\frac{1}{16}$ to $\frac{1}{4}$ grain (0.004 to 0.006 gramme). He recommends[26, May] this drug as an antiseptic, and reports one case of puerperal septicæmia successfully treated by injections of a strength of 1 to 2000. He regards it also as useful as a spray in diphtheria, and in the sore throat of scarlet fever. A lotion of 1 to 3000 rapidly cures chronic discharges from the ear and acute septic discharges from the eye. The sodic solution is preferable to the potassic because of the penetrating properties of the sodium salts, due to their greater deliquescence. Miquel and Rueff,[26, June] treated 27 cases of pulmonary tuberculosis with biniodide spray. Nineteen were benefited, the others unchanged. G. Sims Woodhead[1129, v.15, p.235; 9, May 11] has determined experimentally that albuminous solutions of the biniodide remain clear for days, whereas with the bichloride of mercury an insoluble precipitate is formed. The solution for use is to be made with the iodide of potash. A jar containing bichloride solution and blood showed, at the end of six weeks, a few bacilli and micrococci, and its surface was covered with pencilium glaucum, while a similar jar containing biniodide solution was perfectly free from any change. Eugene P. Bernardy[1099, Jan. 26] used the biniodide of mercury in 6 cases of labor in which injections were indicated, in all of which the patients did well. He used a 1 to 4000 solution three to four times daily. It also acted well in a case of abdominal abscess intercurrent with typhoid fever, in a case of double laceration of the cervix, in an abscess of the foot, in 1 of the axilla, and 3 cases of carbuncle. He finds also that enveloping the chest in a layer of biniodide-of-mercury wool relieves the pain in pulmonary troubles. He thinks that possibly this is due not to the warmth only, but to the fact that the heat disengages the salt and that the patient is thus surrounded by an antiseptic atmosphere. He uses it also to disinfect the stools of typhoid fever. Stellden[90, Mar.] reports a death-rate of 5 per cent. in 1400 cases of diphtheria treated by mercuric cyanide. The cyanide was given internally and also used as a gargle.

J. Sterling Carriger[1, Feb. 2] calls attention to the fact that George B. Wood, in 1849, recommended calomel as a diuretic. According to A. Mathieu,[100, Jan. 15] toxic accidents are more likely to occur when diuresis is not obtained. J. G. Edgren[870, p. 801, '88; 170, Oct.] is favorably impressed with the use of calomel as a diuretic in heart disease, and thinks that if it does not act the cause of ascites and anasarca must be looked for elsewhere than in the heart. This does not include those cases in which the patient is so low that no medicine would be effective. In one instance the calomel, in 0.20-gramme (3 grains) doses, three times a day, was used continuously for eleven days, and there was not a trace of mercurial poisoning. In this case as much as 3300 cubic centimetres (6 pints 15 fluidounces) of urine were voided in a single day, and the girth of the abdomen was reduced from 110 to 75 centimetres (43.30 to 30 inches). If there be degenerative changes in the heart-muscle great care must be used in its administration. If there be portal obstruction diuresis is not increased. H. Huchard[85, Apr. 28] considers the drug useless in cardiac diseases complicated with cirrhosis, and hurtful in renal or heart disease if albumen be present in the urine. In a most interesting paper, Komme[164, Aug. 8, 15] reviews the history and action of calomel as a diuretic, and makes the following classification of the recorded cases:—

	No. of Cases.	Successful.	Unsuccessful.
Cardiac dropsies, ...	97	88	9
Bright's disease with œdema, ...	24	2	22
Ascites, ...	25	8	17
Pleurisy, ...	12	5	7

It will be seen from the above that the useful sphere of calomel as a diuretic is in the dropsies of heart disease.

Vladimir F. Buschuew[1128] has collected from his own experience and that of others the records of 219 cases of cardiac and renal dropsies. According to his own observations, calomel in large doses is a powerful diuretic, acting best in cardiac diseases, next in renal cases, and least of all in hepatic affections and effusions into serous cavities. He does not, however, recommend it unless other diuretics fail. Masius,[62 Apr. 1] when using calomel as a diuretic, gives 3 grains (0.195 gramme) twice daily, adding $\frac{1}{7}$ grain (0.009 gramme) of opium if there be purging. During the first two days the urine may be diminished; diuresis is established on the third or fourth day, and the drug is to be suspended when diuresis becomes free. It is uniformly certain in its action. Minute precautions must be taken to prevent stomatitis, especially by gargling with chlorate of potash. In one case of advanced nephritis gangrenous stomatitis developed on the second day, diuresis not being manifested. Moderate diarrhœa does not interfere with the diuresis. The tension and volume of the pulse are not affected, though when diuresis occurs the heart's action is accelerated indirectly. There is no irritant action upon the renal epithelium. J. Pal[169 Feb.] gives the results of the use of calomel as a diuretic in 4 cases of heart disease. He finds it a powerful diuretic. Where there is cardiac degeneration it is much less effective. Colombe,[85 June 13] reports an anasarca of heart origin successfully treated by calomel, and he advises this remedy to be tried where digitalis and strophanthus have failed.

Hugo Löwenthal[4 Aug. 12] reports 3 cases of late manifestations of syphilis, which were cured by intra-muscular injections of calomel and oleum cinereum, after other methods of specific treatment, even that by inunctions, had proved ineffectual.

Karl Ullmann,[84 June 15, 29] describes the method of preparing oleum cinereum, in the strength of 30 per cent. and 50 per cent., as practiced in the Vienna General Hospital. He found that these solutions, if properly prepared, did not vary much in their strength and composition, and that therefore the oleum cinereum is not contra-indicated. As the drug appears on the market, there is, however, a great diversity as to the amount of mercury contained in the various preparations. J. Roussel[735, Mar. 1] prefers for hypodermic use the cyanide or the salicylate of mercury in 1- to 2-per-cent. strength, as these preparations are painless, effective, and prompt. Chernoguboff[6, Oct. 12] has made a number of observations in regard to the subcutaneous injection of the yellow iodide of mercury in syphilis, and reached the following conclusions: 2-grain doses (0.13 gramme) cause a quicker disappearance of symptoms than smaller ones. In fresh cases, an interval of ten or eleven days between injections will prevent salivation, but old cases need a longer time. The injection should be made into the cellular tissue and not into the muscles. In tertiary syphilis, early gummata and those which are breaking down rapidly disappear; but in impetigo and rupia iodide of potassium is often needed in addition. Local applications do not hasten cure except in sore throat with papular infiltration of the tonsils, which requires heroic treatment. The treatment is contra-indicated in severe anæmia not caused by the specific disease, in general exhaustion, alcoholism, chronic inflammation of parenchymatous organs, and in extensive dental caries; pregnancy is not a contra-indication. Mercury is found in the urine in from four to eight hours after the injection. Barfoed[209, May 28] declares that the oxide of mercury and ammonium combinations, which are met with as dark precipitates in cases in which the ammonium is in excess, are not firm chemical compounds, as was formerly supposed, but masses of mercury-ammonium compounds with metallic mercury, which causes their dark color. George Hay[161, Oct.] thinks that there are numerous salts of mercury which can be used for vaporization besides calomel and the red oxide of mercury. Herbert G. Lee[2, Sept. 28] reports that 3 drachms (11.66 grammes) of yellow oxide of mercury with 1 of the red, accidentally taken by a man, produced in three minutes violent vomiting, followed by diarrhœa. Milk and eggs were given, and the man recovered. With the salicylate of mercury Pulmert[45, H.S.,'98; 9, Feb. 16] did not obtain satisfactory results in the treatment of gonorrhœa, the duration of the disease not being shortened. Venereal and syphilitic ulcerations rapidly healed after treatment with cotton dipped in a 1-per-cent. solution. Treatment of syphilis proper by injections was also satisfactory. Malécot[28 Oct.] finds no pain from solutions of the salicylate of mercury when used for urethral injections. The advantages claimed for this drug are: it does not disturb digestion, does not salivate, and is very rapid in its action. Riche is quoted as saying that there are four varieties of the salicylate of mercury containing from 42 to 59 per cent. of mercury, and that these should not be confounded. β-naphthol mercury, naphthol mercury acetate, and thymol mercury acetate are new antisyphilitic remedies. The first is also used in 0.05-gramme (¾ grain) doses in the treatment of typhoid fever, as its action is to destroy the bacillus of that disease.[26 Mar.] Ludwig[84 Oct.26] describes a new method of quantitatively determining the localization of mercury in the organism in poisoning with corrosive sublimate. He finds by this method that, next to the intestinal tract, most mercury is found in the kidneys, less in the liver, less still in the spleen, and almost nothing in brain and bone. In 2 cases in which the thyroid gland was examined, it contained .030 gramme (½ grain) compared with .350 gramme (⅗ grain) found in the kidneys. Reder asserted, in the discussion which followed the reading of the paper, that in his researches very little mercury was found in the saliva after the administration of corrosive sublimate.

A. G. Sandberg[2 Mar.30] reports a case of poisoning with 20 grains (1.30 grammes) of white precipitate given in mistake for ammonium chloride. The patient was a woman 48 years old. A few minutes after swallowing the dose she felt a burning pain in the throat and stomach, with a feeling of nausea. In about twenty minutes she began to vomit, which she continued to do all day, suffering constantly from burning pain in the throat and chest. Purging set in eight hours after taking the powder, and was accompanied by violent abdominal pains and much straining. Vomiting and purging continued more or less for forty-eight hours, the stools after a time consisting chiefly of blood and mucus. At the end of thirty-six hours after taking the powder salivation occurred. At the end of forty-eight hours ulcers began to form on the inside of the lips and cheeks and under the tongue. Saliva ran freely from the mouth, and the breath was excessively fetid. About the eighth day the mouth symptoms began to subside, but the ulcers were not all healed until the beginning of the fourth week. Neuralgic pains in the teeth and jaws were troublesome during this period. A marked trace of albumen was found in the urine on the third day, and did not disappear entirely for six weeks. During the latter part of the first week her condition appeared very critical, owing to pain, sleeplessness, and inability to take food. The main treatment was the use of mouth-washes of Condy's fluid and chlorate of potash, the internal administration of chlorate of potash, and, subsequently, iodide of potash and careful feeding. E. Kaufmann[20, Aug.] reports the death, on the nineteenth day, of a patient who had taken 8 to 12 grammes (2 to 3 drachms) of corrosive sublimate. Vomiting was present from the first. The diarrhœa, never very severe, did not appear until the third day. The description of an interesting autopsy is added. Wladimir Lukasiewicz[8, July 18,25] reports a case of death by mercurial poisoning consequent upon subcutaneous injections of a 30-per-cent. solution of oleum cinereum (hydrarg., lanolin., āā 3 parts, and olive-oil 4 parts). From September 20th to November 8th, 2.05 cubic centimetres (33 minims) of the oleum cinereum was injected, and at the last injection there was not a trace of mercurialism. A week later pain appeared in the gums, but no fœtor or salivation. Five days later marked symptoms of poisoning occurred,—sponginess of gums, salivation, mercurial fœtor and stomatitis, followed by necrosis and violent, uncontrollable gastro-enteritis. On the 19th of December the patient died. The post-mortem report is added: there was an interesting appearance of the digestive tract. Other cases of acute mercurial stomatitis are added, which fact would seem to contra-indicate the hypodermic administration of such a powerful remedy as the oleum cinereum. Two cuts are given, showing the microscopical appearance at the point of the injection. At the New York Pathological Society, Henry P. Loomis[59, Jan. 15] related the case of a man, 26 years old, who took, with suicidal intent, 10 grains (0.65 gramme) of the bichloride of mercury. Soon afterward he was treated for it by having his stomach washed out and then by the administration of eggs and milk. There was much pharyngitis, and the vomit was of a greenish-colored mucus, occasionally containing blood; the extremities were cold and the urine normal. The patient died from exhaustion four days after taking the bichloride. Virchow[60, Nov. 29, '88; 40, Mar.] found the lesion in a case of poisoning by the cyanide of mercury to very closely resemble those seen in mercuric-chloride poisoning. As the patient lived eight days after the taking of the poison, the pathological changes were well marked. The lowest portion of the ileum was the most affected part of the digestive tract, and the kidneys were found to be impregnated with lime-salts to a marked degree. J. W. Runeberg[69, Jan. 3] received into the hospital, on April 27, 1888, a woman, aged 34, who seemed to be suffering from symptoms of pernicious anæmia. It was learned that she had syphilis, and that she had received hypodermic injections of 0.10 gramme (1½ grains) calomel each on March 12th to 20th and April 13th. Stomatitis and diarrhœa set in, and the patient died of mercurial poisoning on May 6th. A post-mortem was held, in which it was shown that the cause of death was mercurial dysentery. Five other cases are then noted. The writer thinks, from the above facts, that even 0.10 gramme (1½ grains) may be too large for general use, and that idiosyncrasy must always be searched for. Herfeld[1019; 819, Aug. 31] describes a case of chronic mercurial poisoning in a laborer, who was employed in exhausting incandescent electrical lamps with mercury.

Lesser[2, Nov. 3] does not look favorably on injections of insoluble mercurial salts. Among 500 injections, internal disturbances and dysenteric conditions occurred twelve times. In 3 cases symptoms of embolic pulmonary infarction supervened immediately after the injection. The danger is in the fact that a deposit of mercury may be established in the body at the point of injection, from which it penetrates slowly but constantly into the organism. Arkle[2, Mar. 30] showed, at a meeting of the London Clinical Society, a man with tremors of the hand, which ceased during sleep, and were ascribed to mercurialism. Potassium iodide and sulphur-baths had greatly decreased the trouble.

Runeberg[69, Jan. 3; 678, Feb.] records the death of a syphilitic patient following treatment by hypodermic injections of calomel in 1-grain (0.065 gramme) doses. Hard, cheesy masses were found in the buttock, where the injections had been made. At the post-mortem the heart was found in a state of fatty degeneration, the spleen enlarged and yellow, the left lung infiltrated, and the mucous membrane of the alimentary tract infiltrated and covered with hæmorrhagic spots.

Hydrastis Canadensis.—A. Felsenburg[650, Nov. 29, '90] has used the fluid extract of hydrastis canadensis as a topical application in pharyngitis, with or without enlarged tonsils. The results have been so favorable that he recommends that a thorough trial be given it. Mills C. Brasher[192, May] has found nothing better in leucorrhœa and gonorrhœa than injections of hydrastis.

Hydrate of Amylene.—Dietz[41, No.34,'88; 9, Feb.9] mentions 4 cases of an overdose of hydrate of amylene. All exhibited symptoms of alcohol poisoning and all recovered under administration of camphor. (See Amyl Hydrate).

Hydrocinnamic Acid.—From the experiments of Klein and Lingard[15, Feb.] in regard to the marked destruction of the virus of pulmonary tuberculosis by hydrocinnamic acid, C. E. Williams was led to try it in a number of cases of tuberculosis. Out of 20 patients in the various stages of that disease, 13 manifested a decided improvement, 4 remained stationary, and in 3 the symptoms grew worse. Ten to 20 minims (0.62 to 1.23 cubic centimetre) of a saturated alcoholic solution (1 to 6) were given in water three times daily.

Hydrochloric Acid.—Letulle and Vaquez,[410, No.1,2] from their observations on cases of poisoning with hydrochloric acid, concludes (1) that it produces severe gastritis, with embryonic proliferation and extensive cellular necrobiosis; (2) that there is great danger of penetration of the caustic liquid into the respiratory passages during efforts at vomiting; and that (3) such efforts, therefore, should be prevented, if possible, by washing out the stomach. K. N. Vïnogradoff[1008, No.2,p.38; 90, June] considers the morbid changes produced in man by acute poisoning with the mineral acids. He thinks that renal changes are constant.

Hydrofluoric Acid.—A correspondent[147, June] writes that Ludwig Polyák, from about fifty *séances* of hydrofluoric-acid treatment for phthisis as recommended by Gager, comes to the following conclusions: (1) that the number of bacilli in the expectoration was increased; (2) the pulmonary condition became worse as the cough and expectoration were increased, while the body-weight and the vital capacity of the lungs were decreased; (3) the conditions under which the gas is given are not hygienic. His judgment is that not only is the treatment without any good effect, but that it is actually injurious.

Hydrogen Peroxide.—D. M. Cammann[59, Nov.2] has found, while giving hydrogen peroxide, that 10 out of 18 patients noticed that their urine was increased in quantity.

Hydronaphthylamine (*Tetra-hydro-β-naphthylamine.*)—Filehne[26 June] is quoted as finding that hydronapthylamine is a more powerful mydriatic than atropine, for the reason that a pupil dilated as much as possible with atropine can be still further dilated by the use of a 5-per-cent. solution of hydronapthylamine.

Hydroxylamine.—C. Binz[20 Oct.] extends the series of his researches on the action of the halogen salts. He believes that the action of both hydroxylamine and nitrate of sodium is due to the liberation of nitrous acid. Neither substance can be applied in therapeutics for its narcotic influence on the central nervous system, on account of the rapidity with which it undergoes decomposition and the harm it does to the other organs. References to the literature of this subject are added at the end of the article. P. J. Eichhoff[28 v.8, p.18; 786 May] has used hydroxylamine with success in 5 cases of herpes tonsurans and 5 of lupus vulgaris, and he recommends its trial in psoriasis. A $\frac{1}{10}$ of 1-per-cent. solution in glycerin and alcohol is applied three or five times daily. On account of its irritant properties care must be used even with this weak solution.

Hyoscyamus—Hyoscine—Hyoscyamine.—Hyoscine must not be confounded with hyoscyamine. A. S. Barling[6 Oct. 26] speaks of the value of hyoscine as a sedative. O. Klinke[68 No. 7] finds that the hydroiodide, in common with the hydrochloride and hydrobromide, possesses great advantages over the usual hypnotics now in common use, which are high-priced, taste bad, and are difficult to administer. Merck's preparation was employed in 1350 trials on 69 different patients in the Breslau Hospital for the Insane. As to the dose, it was never found necessary to administer more than 0.003 gramme ($\frac{1}{20}$ grain) and its hypnotic effect was shown to be more certain when administered by the mouth than when given hypodermically. On the other hand, Otto Dornblüth[9 May 11] gives tables showing that the best effect was produced when the drug was given hypodermically. It was not found necessary to increase the dose, even though the hyoscine was used in the same patient 100 times or more. While there are different kinds of hyoscine on the market, Malfilatre and Lemoine[55 Sept. 7] think, from their experiments, that these preparations have become more constant during the last year. As a hypnotic in 62 insane patients, 316 hypodermic injections were given. They consider it an excellent palliative, especially in mania, but they are not prepared, as yet, to state whether or not there is any curative action in the drug. From the fact that a small amount of hyoscine may not act as a hypnotic but as an excitant, experiments are now being made to discover its action in the treatment of melancholia. For this purpose, however, not enough data have been collected; but in several cases, especially in one, a hypochondriac, marked amelioration followed the use of small doses of hyoscine.

On the contrary, Jno. J. Weaver's experience[6 Nov.2] has been entirely unfavorable with the drug, both as a sedative and as a hypnotic. But in the hands of Walter S. Colman and J. Taylor[6 Oct.12] the drug never failed to act as a prompt and powerful sedative in cases of mental excitement, and no bad after-effects followed. In the case of poisoning with hyoscine, reported by S. W. Morton,[80 Feb.] $\frac{1}{75}$ grain (0.0008 gramme) of the hydrobromate was given to a very large man, weighing not less than 200 pounds (100 kilogrammes). He was at the time in an irritable and susceptible condition, and the drug was given for sleeplessness, which had resisted other hypnotics. In five minutes after the injection dryness of the mouth and throat was noticed, attended with a constant desire, but at the same time an inability, to swallow. In a few minutes his speech became thick and was accompanied by complete paralysis of the soft palate and upper lip, the latter being limp and immovable over the upper teeth, and gave the already much-impaired voice a muffled sound. The pupils at this time were noticed to be slightly dilated. Joseph S. Gibb[80 Feb.] reports a case of poisoning by $\frac{1}{50}$ grain (0.0013 gramme) of the hydrobromate of hyoscine taken hypodermically, by mistake, by an ataxic man. The injection was taken at 12 (midnight). In a few moments he was noticed by his wife to be acting strangely. Gibb saw him at 12.45 A.M. and found him wildly and actively delirious. Clonic convulsions occurred in the arms and legs, with opisthotonos. Great dryness of the mouth and throat, a desire but inability to swallow, and paralysis of the upper lip were also noted. W. A. Carey[112 Apr.] recounts, in a graphic manner, his personal experience with the $\frac{1}{100}$ grain (0.065 to 0.0006 gramme) of hyoscine, followed, in two hours, by another dose of the same size. Soon after the second dose, poisonous symptoms, consisting of extreme dryness of the mouth, muscular tremors, accelerated respirations, imperfect vision, mild delirium, and visual delusions, were present. There was also an intense desire to urinate, though the attempt was unsuccessful. The urine passed next morning was opaque and of a peculiar odor. All the effects of the drug had passed off in thirty-six hours, with the exception of sensitiveness of the eyes. Two other cases of poisoning are added. In one of these, a patient suffering from typhoid fever, the $\frac{1}{96}$ of a grain (0.0006 gramme) may have produced a fatal result.

W. A. Edwards[112, June] reports a case in which the administration of $\frac{1}{120}$ grain (0.0005 gramme) of hyoscine hydrobromate to a patient with chronic intestinal nephritis and obscure brain symptoms was followed by toxic symptoms. The patient was a woman 59 years of age. The symptoms were nervous, culminating in active, delirium, with visual delusions; articulation was almost inaudible, and deglutition was difficult. The mind was clouded, a low, muttering conversation being carried on with imaginary persons. No urine was passed during the night. Respiration was hurried, shallow, and inefficient, irregular in rhythm, fluctuating between 10 and 28 in the minute. The pulse was somewhat irregular and a little weaker than usual. The heart was dilated and the circulation was poor at its best. In a few hours all marked effects of the drug had passed away, except its mydriatic influence; the pupils returned to normal within the next twenty-four hours. Still another case of poisoning by the hydrobromate is related by D. W. Prentiss.[80, June] In this case $\frac{1}{100}$ grain (0.0006 gramme) was given hypodermically to a woman who was accustomed to take morphine and atropine in the same way for the relief of severe pain in the cervical spine. Hyoscine was substituted without the patient's knowledge. In three minutes there was dryness of the throat, the pupils soon became dilated, and delirium came on and was followed by stupor. During the delirium the patient was very despondent and had severe sinking spells. Magnan and S. Lwoff[648, July 24] have seen the hydrochloride of hyoscine produce erythema of the face lasting an hour or two. These differences in the results obtained may, perhaps, be explained by the statement of E. B. Potter,[170, Sept.] who writes that when hyoscine is given in small doses it must not be forgotten that it does not act as a hypnotic, but as an excitant to cerebral action. He also says that there seems to be no disposition to form the habit. The writer considers it a safe remedy in $\frac{1}{20}$- to $\frac{1}{15}$-grain (0.003 to 0.004 gramme) doses, repeated, if necessary, in two hours. This dose, however, is an unsafe one if the hyoscine be pure. One observer, Laborde, in discussing Magnan's dose of 0.001 gramme ($\frac{1}{40}$ grain), hypodermically administered, considers that even this amount should be diminished to a fractional part of a milligramme.

Hyoscyamine, in doses $\frac{1}{120}$ to $\frac{1}{60}$ grain (0.005 to 0.001 gramme), was found by Lemoine[14, p.1009; 161, Sept.] to be a safer, more certain, and more efficient hypnotic in acute mania than hyoscine in similar doses. A. H. Dodd[2, Sept. 21] reports a case of poisoning by 6 drachms (23.32 grammes) of the tincture of hyoscyamus (B. P.), marked by symptoms very similar to those of belladonna poisoning. The respiration was, however, entirely unaffected.

A Russian writer[683, Nov.,'88; 109, Apr.] recommends that toothache be treated with fumigations of henbane-seeds. The powdered seeds are mixed with yellow wax, and the mass is made into a candle. The wick is lit, and, after burning a short while, is blown out, and the smoke which arises is caught by a funnel and introduced into the cavity of the decayed tooth. An editorial[586, No. 41; 109, Apr.] remarks that poisonous symptoms might be produced from its use in this way, and that the method should be employed only on a physician's advice.

Hypnotism.—The use of hypnotism in the treatment of disease has only recently attracted the attention of physicians in America and England. Under such names as "mesmerism," "animal magnetism," etc., it has been left so long in the hands of quacks and charlatans that men of science hesitate to associate their names with it. It is true that, more than forty years ago, Braid, in Manchester, and Mitchell, in Philadelphia, made admirable studies of hypnotism, both as an anæsthetic and as a therapeutic agent; but these researches do not seem to have exercised much influence on practical medicine. During the past ten years, however, hypnotism has received abundant attention on the continent of Europe, and its use in medicine can no longer be ignored. A copious literature (over 1000 books and papers) has appeared on the subject, and this grows with increasing rapidity each year.

Several recent books (Bleuler,[1131] Forel,[1132] Moll[1133])[169, Nov.; 61, Aug. 24] give such accounts of hypnotism and its use in medicine as may be found interesting to the physician. The following are the more important works: Bernheim,[1134] Björnström,[1135] the Humboldt Library,[1136, No. 113, p. 124] Tuckey,[1137] Cory,[1138] Liébault,[1139] Moll,[1133] Forel,[1132] Binet and Féré.[1140] In addition, two contributions to journals, of such length and value as to rank with books, should be noticed particularly: one by Felkin,[36, Sept. to Dec.] the other by L. Stembo.[21, July 27, Aug. 3] Several shorter accounts of hypnotism and its therapeutic value have also appeared during the year: among the more interesting of these are an editorial,[760, Sept. 28] an article by von Steinmetz,[82, July 13] an account of the Nancy School of Hypnotism by W. F. Robinson,[202, July 10] in which he describes a visit to Bernheim's clinic; a paper by Ringier[214, Aug. 15; 107, Nov.]; and, lastly, an article by the eminent neurologist, v. Krafft-Ebing.[113, July 21] Attention should be called to[241] a monthly journal edited by E. Bérillon, with the co-operation of nearly all those who are authorities on hypnotism.

The interest excited by hypnotism in Europe is evidenced by the frequency with which it has been discussed by medical congresses and societies. Indeed, among the many meetings held at Paris last summer was a special International Congress of Experimental Hypnotism.[3, Aug. 14 to 28] Hypnotism was also part of the programme of the International Congress of Physiological Psychology,[208, Aug. 14; 3, Aug. 3] of the Third Congress of Russian Physicians,[118, Mar. 8] and of the Spanish Congreso de Medicina.[494, Aug. 31] Hypnotism, moreover, was a subject of discussion by the Gesellschaft der Aertze in Wien,[3, June 14] the Berliner Medicinische Gesellschaft,[4, June 3] and the Greifswalder Medicinischer Verein.[69, Oct. 31] W. C. Townes read a paper before the Tri-State Medical Society.[81, Nov.]

Before discussing the real phenomena of hypnotism, certain reputed phenomena must be noticed. The clairvoyance, etc., of traveling mesmerists need not detain us; but the authority of Charcot has been lent to certain experiments made chiefly by his pupils in Salpêtrière, which tend to throw discredit on the whole subject. These experiments concern the transference of thought, the action of magnets and of drugs at a distance, etc. They were all made on a dozen excessively hysterical patients, long confined together and often exhibited; so that a false theory has been elaborated, the joint product of physicians and patients. All the actions of the patients may be readily explained without appeal to the marvelous, and without questioning the good faith of the enthusiastic gentlemen who conducted the exhibition.

The ordinary hypnotic state does not seem to differ materially from natural sleep, while the more remarkable sort (to be obtained only in a very few subjects) corresponds to somnambulism. The hypnotic sleep is, however, one in which the subject is peculiarly apt to receive suggestions. Bernheim asserts that this is a characteristic of ordinary sleep. In any case, it is no new and unique phenomenon, but simply an increase of an ordinary mental tendency. It is the nature of men to believe and obey, extreme examples being found in church and army. Most physicians will have met cases in which their personal authority accomplished more than their medicines. If a person is embarrassed, and one says to him, "You are blushing," he is likely to blush. The hypnotic state may be defined as a condition in which the normal tendency to follow suggestions is augmented.

Hypnosis probably may be produced in 9 patients out of 10. Liébault, of Nancy, records only 27 failures in 1014 cases; Wetterstrand, in Sweden, only 17 failures in 718 cases. Hypnosis may be induced by physical means, such as fixing the eyes in a way that causes strain of convergence in accommodation, by pressing gently the eyelids, by monotonous sounds or touches, etc.; but simple suggestion will serve just as well, and is less exhausting to the patient. The method employed in the Nancy clinic is as follows: A new subject is allowed to see others hypnotized in order that he may learn how simple and harmless it is. He is then placed in a comfortable arm-chair, and told to think of nothing in particular, but to fix his eyes and attention on some object, such as the pattern of the carpet. The phenomena of natural sleep are then suggested: "Your sight is growing dim; your eyelids are heavy; my voice seems muffled; you are getting more sleepy," etc. Usually within three minutes the eyelids close, or may be closed by the operator, and the patient is in the hypnotic sleep. In some cases further suggestion, and perhaps further trials, must be undertaken. Cases of failure are probably due to conscious or unconscious resistance on the part of the patient, or to inability to fix the attention. Thus, contrary to the ordinary opinion, hysterical subjects are more difficult to hypnotize than others, while the insane usually cannot be hypnotized. The patient is awakened by simply being told to awake.

The degree of the hypnosis varies greatly according to the plan of the operator and the nature of the patient. The Nancy physicians note six degrees, as follow: Degree 1. Symptoms: Drowsiness; the eyelids feel heavy; it is usually impossible for the patient to open the eyes; a feeling of lassitude is experienced; consciousness is absolutely unaffected. This stage is almost invariably seen. Degree 2. Suggestive catalepsy (clypotaxis). Symptoms: Consciousness retained; if a limb be placed in a certain position, it is retained there for a few seconds and then tremulously sinks; the fingers do not retain a position which may be given them; the eyelids are closed; the limbs are flaccid; the patient's relation with his surroundings is uninfluenced; memory of what has happened is perfect on awakening. Degree 3. Symptoms: Movements suggested to the patient are automatically continued, such as rotating the arm; contracture of muscles, if suggested, takes place; sensibility is diminished; consciousness and memory are retained. Most patients assert that they have never slept, and say that they have obeyed the operator in order to please him. Degree 4. Symptoms: The hypnotized person is *en rapport* with the hypnotizer alone. He is absolutely shut off from the influence of others, unless the operator transfers the *rapport*. Other symptoms are present, as in the third degree. Consciousness and memory are retained. Degree 5. Light somnambulism. Symptoms: Diminished or completely abolished sensibility; consciousness clouded; memory uncertain and indistinct; suggestive hallucinations are possible. Other symptoms, as in the fourth degree. Degree 6. Deep somnambulism. Symptoms: Consciousness abolished; complete amnesia after awakening. The symptoms mentioned in the fifth degree are all more strongly marked.

The use of hypnotism in medicine may be classed under three heads: (*a*) as an anæsthetic, (*b*) as a sedative, and (*c*) as a condition of increased susceptibility to suggestion. There is no doubt but that hypnotism would play an important part in surgery and medicine if chloroform and other anæsthetic agents had not been discovered. Under present circumstances its use seems limited. In subjects who have been hypnotized previously it may prove convenient in minor operations. Forel[3 Aug. 14] recommends it for operations in the mouth, as the patient is able to swallow the blood, and thus escapes the danger of its falling into the respiratory passages.

Hypnotism has been used to relieve the pains of labor by Cajal,[494 Aug. 31] de Jong,[3 Aug. 14] Mesnet,[241 Aug., '87] Dumontpallier,[241 Mar., '87] and others; but in most cases not with complete success. Surgical operations in which hypnotism was used as an anæsthetic were performed by

Fort$^{3}_{\text{Aug. 14}}$ and Tillaux.$^{241}_{\text{July}}$ It may be worth while noting that in the dentist's chair a hypnosis is often brought about which relieves the pain and tedium.

The use of hypnotism as a sedative, while advocated by some (Lengs$^{100}_{\text{Aug. 20}}$), does not seem to have made much headway during the past year. It is, indeed, hard to separate the direct effects of the hypnosis from the suggestion which is usually combined with it. We must bear in mind, however, the almost universal use of rhythmic sounds and movements to produce calm, and the analogy of this state to hypnosis. Thus, hypnotic methods are employed when the mother rocks or sings to her infant; also when sleep is brought on by hearing poetry read aloud, by counting, etc. The ordinary effects of music seem to include hypnotic elements.

Hypnotism must base its chief claim to recognition on the increased susceptibility to suggestion which it produces in the patient. In extreme cases the subject is an automaton in the hands of the operator. He sees what he is told to see, and feels what he is told to feel. Hallucinations may be suggested, so that the subject may imagine himself before the piano or on horseback, and acts accordingly. By suggestion, the temperature of a limited area of the body may be raised 2° to 3° F. (16.66° to 16.11° C.), bleeding of the nose caused, or a blister raised, by the application of a postage-stamp. It is also possible to make the patient perform actions after awakening (post-hypnotic suggestion). Thus, he may be told to go to sleep, or even to perform some absurd action, when the clock strikes a given hour, and he will do so. But in the meanwhile he will have forgotten entirely the suggestion, and will appear to be in a normal state. These extreme phenomena can be obtained only in certain subjects, but in all cases there is an increased susceptibility to suggestion. Thus, by suggestion pain may be produced in, or driven away from, any part of the body. The therapeutic importance of this phenomenon is evident. The influence of the mind on many of the bodily functions is universally acknowledged, and the power to increase and direct this influence would, in many cases, be of great help to the physician.

We may roughly divide the pathological cases in which hypnotic suggestion has been used into five classes, and, taking these up in order, note the results of treatment. The classes are:

I. Organic affections. II. Insanity. III. Functional disorders of the nervous system. IV. Functional disorders of the bowels and kidneys, of menstruation and of digestion. V. Alcohol and morphine habits and vicious tendencies.

I. In organic affections, as might be supposed, a cure can hardly be effected by hypnotism. Thus, Van Renterghem and Eeden[1141] reported that out of 29 cases of organic disease of the nervous system, treated by hypnotic suggestion, only one cure was obtained, and that was doubtful. Pain and other symptoms may, however, be relieved. Thus, Tuckey, of Aberdeen,[6] reports a case of tabes dorsalis, which he treated by daily hypnotism for about three weeks. The symptoms had been noticed somewhat over a year. In addition to local anæsthesia and partial loss of sight, there were severe pains in the chest and back, obstinate constipation, inability to walk more than ½ mile (800 metres), loss of appetite, insomnia, and great mental depression. The patient was hypnotized, and suggestions were made as to the bowels, digestion, sleep, and pains, the parts at the same time being gently rubbed. The following day the bowels were moved naturally for the first time in three months. After three weeks of treatment the patient's habits had greatly improved. He enjoyed his food, hardly ever had any pain, was able to walk 4 or 5 miles (6½ or 8 kilometres) without fatigue, and his eye-sight was improved. The relief continued until the time of writing the report (about four months), although the disease probably progressed. In a case reported by Fontain and Sigand, of Toulon,[6] a man suffering with an advanced stage of disseminated sclerosis of the cord was so benefited as to be enabled to leave the hospital. The diagnosis was verified, as the patient returned within a year and died of tuberculosis. Sperling[60] reports cases in which pain and other symptoms in tabes, sclerosis, and neurosis were relieved. Danillo, of St. Petersburg,[109] however, reports a case of tabes in which the ataxic gait was not improved, and he thinks hypnotism and suggestion are useless in organic cerebral and spinal disease. Lengs[100] is particularly hopeful as to the value of hypnotism in organic disease, and tells of several cases he has treated with marked improvement.

II. In insanity good results might have been looked for from the use of hypnotism, but it is very difficult to hypnotize the insane.

Voisin,[3, Aug.14] of Paris, however, reports that he has succeeded in about 10 per cent. of cases, and was able to relieve symptoms and curb abnormal propensities. De Jong[3, Aug.14] reports success in cases of melancholia and agarophobia.

III. Hypnotism has been the most used in functional disorders of the nervous system, and yet it is here that the results are the most conflicting. The contradictory evidence is, however, no greater than in the case of many drugs. Indeed, it must be remembered that, as regards hypnotism, even more than other methods of treatment, positive evidence counts for more than negative. The fact that certain physicians are not able to hypnotize a considerable percentage of patients, or do not note improvement, tells very little against the evidence of those who report favorably on its use.

Van Renterghem and Eeden[1141] reported that in 40 cases of severe hysteria and other neuroses, 9 were completely cured and nearly all improved. In 164 slighter neuroses, 47 were cured, 37 markedly improved, and 39 slightly improved. According to Sperling,[69, Oct.31] those cases of hysteria in which the symptoms are many and quickly changing are less amenable to treatment than those cases in which there is some single severe symptom. He records 3 cases of long-standing hystero-epilepsy in which cures were effected. Stembo[21, July 27, Aug.3] records a case of severe hysteria (convulsions brought on by smells) in which, after eight weeks of other treatment, hypnotism was resorted to with success. He also reports 2 cases of hysterical sleep improved by hypnotic suggestion. Bidon[46, May] relates at great length 2 hysterical cases much improved by hypnosis. Danillo[109, June] has treated 15 cases of hysteria in which relief was given to symptoms such as motor palsies, convulsive fits, aphasia, anæsthesia, etc.; in most cases, however, relapses followed. Cures are also reported by Bernheim,[1134] Strübing,[69, Oct.31] Mendel,[4, June 2] Briand,[3, Aug.14] Bourru et Burot,[3, Aug.14] Ringier,[214, Aug.15] and others.

Sperling[69, Oct.31] mentions a case of chorea in which hypnosis was effected. In epilepsy it mostly fails, and, in some cases, aggravates the symptoms (Danillo).

In minor cases, such as insomnia, stammering, paroxysmal sneezing, etc., hypnosis undoubtedly may prove quite effective. Tuckey[1137] gives several interesting cases in detail. One is the case of a man who, as the result of a shock after a severe accident, had suffered from insomnia for three years, and this had induced dyspepsia and nervous depression. He invariably woke at 3 A.M., and was unable to sleep again. He was hypnotized, and it was suggested to him that he would not awake next morning, and, if he did, he would fall asleep again. He awoke, but almost at once went to sleep again. Two further sittings were given and complete cure obtained. Nearly all physicians who have treated insomnia by hypnotic suggestion report favorably on it. It is claimed by those who have made most use of it that no ill effects follow; others, however, hold that hypnotism should not be used in minor ailments. In hay fever of a neurotic type, hypnosis has been successful (Van Renterghem and Eeden[1141]). Tuckey[1137] records a case of scriveners' palsy in which the patient was so completely cured as to be able to continue writing many hours a day. Similar cases are reported by de Jong.[3, Aug. 28] Tuckey[1137] tells of a severe case of paroxysmal sneezing cured in one sitting, and Stembo[21, July 27, Aug. 3] reports a case of constant coughing, with complications, cured after other methods of treatment had failed.

In the relief of rheumatic and neuralgic pain, hypnotic treatment usually has been followed by success. Interesting cases are reported by Forel,[34, Sept. 17] Bernheim, Van Renterghem and Eeden, Tuckey,[1137] Wetterstrand, and others.

IV. In functional disorders of the bowels and kidneys, of menstruation, and of digestion, the prognosis of cases under hypnotic treatment seems to be very favorable. This is not surprising, as these disorders are largely influenced by mental conditions, and most physicians will have noticed the advantage of using authority and suggestion apart from hypnosis. Many cures of constipation and diarrhœa are reported by Bernheim, Liébault, Wetterstrand, Van Renterghem and Eeden, Tuckey, and others. According to Liébault, cures were effected in 85 per cent. of cases suffering from enuresis nocturna, and Wetterstrand, Tuckey, and others report success. Stembo,[21, July 27, Aug. 3] however, has had 4 failures. In irregular and painful menstruation many complete cures are reported by Bernheim,[202, July 10] Forel,[34, Sept. 17] Sperling,[69, Oct. 31] Tuckey,[1137] and others.

V. For the alcohol and morphine habits and for vicious tendencies, treatment by hypnotism and suggestion seems to be particularly effective. Forel[34, Sept. 17] reports 3 cases of chronic alcoholism cured by hypnotic suggestion. Wetterstrand, Tuckey,[1137] and others report complete cures. Rev. Arthur Tooth[6, Aug. 24] claims that he is getting the most gratifying results from the systematic use of hypnotism in his institution for dipsomaniacs. Danillo,[100, June] however, reports 2 cases of chronic alcoholism in which the results were wholly negative. The use of hypnotism as a means of correction and education for the vicious and depraved, especially the young, is advocated by Bérillon[8, Aug. 28] and Liébault.[241, Jan.] The latter reports that in 22 cases tried by him there were 4 failures, 8 improvements, and 10 cures. These and other writers report favorably on the use of hypnotic suggestion in the treatment of onanism.

Before closing, it is necessary to call attention to several papers which point out the dangers of hypnotism. No one doubts the harm which may come from using hypnotism in public exhibitions, or as a fashionable amusement. These should be discouraged, and, if possible, forbidden.[6, Oct. 19; 241, July; 46, May] Whether or not hypnotism has injurious after-effects when applied to the right patient, in the right way, is not easily decided. Ziemssen[34, Aug. 10; 84, Aug. 10] argues strongly against the use of hypnotism. He declares that it is either useless or has only a temporary value in cases of slight functional disturbances, and that in many patients it has an injurious action. Mendel[4, June 3], and Lombroso,[14, July 21] who have both made use of hypnotism, believe that it is often followed by injurious after-effects, such as nervousness, and even convulsions.

Meynert[8, June 14] holds that hypnotism is the enemy of rational therapeutics; and Charcot, who has done more than any one to encourage the study of hypnotism, believes that the cases in which it should be used are very few.[4, June 3]

On the other hand, Liébault, Bernheim, Wetterstrand, Forel, Van Renterghem, and others who have used hypnotism in thousands of cases, assert that they have noticed no injurious after-effects whatever. These two points of view are not, however, contradictory. It is possible that hypnotism, like many other agents used in therapeutics, may prove injurious or beneficial according to the methods and skill with which it is used.

The employment of hypnotism for criminal purposes is evidently possible. The hypnotized person is in a state in which resistance is not offered to robbery, rape, or murder. It has also been argued (Liégeois [3, Aug. 25]) that post-hypnotic suggestion might make the subject commit crimes under the control of the operator. These dangers are doubtless real, but have been exaggerated by sensational writers and novelists.

In conclusion, it may be said that the proper use of hypnotism may result in the cure of certain functional disorders and give relief in other diseases. It is not unlikely that hypnotism will repeat the history of electricity, massage, and hydropathy, which, at first extolled as a panacea by some and called quackery by others, have now taken a recognized place in therapeutics.

From his own experience, V. Corval [116, Sept.] warmly advocates the therapeutic application of hypnotism. He saw most marvelous results from it in cases of alcoholism, without any symptoms of collapse or other ill effects from the withdrawal of the stimulant. His results were less favorable in cases of the morphine habit, absolutely negative in cocainism, and favorable again in the chloral habit. In all kinds of functional pain (as neuralgias) and insomnia it was generally applied with success. Stammering has been most rapidly and lastingly benefited, and even cured. Many other classes of cases were treated, some with benefit and some with no results. At the end of the article V. Corval publishes his conclusions:—

1. Hypnotism is a remedy partially palliative, partially curative. 2. With care and caution the dangers are exceedingly small. 3. As a new remedy, it should be tried when other known agents have failed. 4. It should be studied not as a curiosity producing interesting effects, but from a therapeutical stand-point with professional judgment.

Moll [4, May 20] relates his experience with it as a therapeutic agent in about 120 cases. He found the treatment was resisted the most in those cases in which there existed a great number of complaints which were constantly changing from one symptom to another. The forms of hysteria most benefited were those in which the main symptom occurred—in paroxysms. In the majority of his cases hypnotism was used in the treatment of functional pain, and it was invariably found that if the third degree of hypnotism could be reached a rapid improvement followed. Chorea was greatly improved by it.

A Paris correspondent [22, July 3], reports the case of a young girl who underwent, with complete insensibility, an operation which otherwise would have been painful, under the influence of hypnotism.

Schuster[116 July] confidently speaks in favor of the therapeutic value of hypnotism. The transitory action is considered no more a contra-indication than the fugitive action of morphine in the relief of pain is a contra-indication to its use. "E. H."[214 Jan.15] reports a case showing the danger and evil consequences resulting from the application of hypnotism by the laity. H. Bernheim[84 Aug.31] has written an interesting paper on the therapeutic value of hypnotism and the different methods of hypnotizing. He defines hypnotism as a peculiar psychical condition, artificially produced, in which the property of being influenced by a suggestion is received by the brain when there is an attempt to carry out such a suggestion. Attention is also called to the legal responsibility of people easily led by suggestions to perform illegal and criminal acts.

Hysterionica Baylahuen.—G. Baillé[67 Feb.23] has studied this Chilian plant in detail. An infusion, 1 part of the plant to 150 parts water, has been found to be efficacious in diarrhœa, but more especially in the diarrhœa of wasting diseases, such as phthisis. The tincture was used in lung diseases. It lessened the secretion and cough, and did not upset the stomach, as is so often the case with the usual cough-medicines. While it is not a diuretic, it seemed to decrease the frequency and the pain of the micturitions in cystitis, and to diminish the bad odor of the urine. Placed on wadding, it can be used as a dressing for ulcers.

Ichthyol.—Workmen who prepare the ichthyol speedily become accustomed to its smell and do not mind it. Various attempts have been made to produce the compound synthetically. Thiol is declared to be such a compound, possessing its virtues but not having its smell.[107 Oct.] Von Hoffmann and Lange[116 May] give the results of a long experience with ichthyol. They find it especially applicable in catarrh of the mucous membranes. In the rapid growth of children, when scrofulosis is localized in the nose, with ozæna, ichthyol, locally and internally, acts much more quickly and certainly than cod-liver oil. Blittersdorf[1 Oct.19] employed the sulpho-ichthyolate in a case of chronic nephritis of eight months' standing. Fifteen grains (0.97 gramme) a day caused abundant diuresis and a reduction of the albuminuria.

Inula Helenium.—Kisselévitch[14] has found that inuline, prepared from the *Inula helenium*, is an excellent stimulant to granulations. Its most important application is in the treatment of atonic scars, in which an application will produce granulations in a few days.

Iodine—Iodide of Potash.—A case showing uncommon tolerance of iodide of potash is reported by Neumann.[41] A soldier drank a solution containing 20 grammes (5 drachms) of iodide of potash in not quite twelve hours. No symptoms appeared. The man had a sluggish ulcer of the foot, but was otherwise healthy. R. Lépine[8] states that Eymonnet has prepared a paper moistened with solution of potassium iodide and dried, and another paper prepared with potassium iodide and tartaric acid, moistened and dried. If these papers be kept separate and dry they will keep indefinitely. If a rubefacient be required, the papers are moistened and brought in contact with the skin. Iodine is liberated and causes a reddening of the skin, followed by desquamation. John V. Shoemaker[191] recommends a syrup of hydriodic acid in those cases in which the alterative action of iodine or the iodides are desired.

Wile[61] has found the syrup of hydriodic acid of great value in the treatment of bronchitis and in the different forms of lead poisoning. Gerson[34] reports a case in which a man with traumatic periostitis of the tibia was given iodide of potash. In addition to the usual symptoms of iodine poisoning, there was a large albuminuria, with fatty and granular casts. No iodine was found in the urine, which had a specific gravity of 1026 and a dark color. This is explained as indicating that the man had already a nephritis, and that therefore the kidneys were unable to excrete the iodine. At the meeting of the Société Médicale de Génève, V. Gauthier[2] spoke of 2 unusual cases of chronic iodism. One patient was a hysterical girl, aged 16, whose iodism was believed to result from prolonged and incessant inhalation of sea-air. The other patient was also a woman, aged 55, one of a family of insane persons. In her case the iodism resulted from the inunction of an ointment of iodide of potash. In both cases there was emaciation and prostration, succeeded, in the second case, by fixed delusions and "melancholic mania."

Röhmann and Malachowski[116] thoroughly discuss the mode of origin and the treatment of iodism. After a full review of the literature, they adopt the nitrite hypothesis as advanced by Sartisson,[1037 '88] Buchheim,[273 B.4,'74] and recently advocated by Ehlich.[1142] They supplement it as follows: A liberation of iodine from potassium iodide by means of nitrites (present in the blood). In the presence of CO_2 the liberation can only occur under the condition that at the place of decomposition no alkali is present. Therefore, in order that iodism can arise, (1) nitrites must circulate in the blood; (2) the reaction on the mucous membranes must not be alkaline. On this hypothesis there are three indications for treatment: 1. To attempt to combine the free iodine again. 2. To remove the nitrous acid at the moment of its liberation from the nitrites. 3. To prevent the formation of free nitrous acid. 4. No way of accomplishing this purpose is found. 5. Nitrous acid is destroyed by sulphanilic acid, with the formation of diazo-benzol-sulpho-nitrate, as asserted by Ehlich.[309 V.10,'88] The writers tried 4 to 6 grammes of sulphanilic acid and 3 to 4 grammes of sodium carbonate in 150 cubic centimetres of water (5 fluidounces) immediately after the appearance of iodism, and obtained the happiest results in a number of cases, thus supporting Ehlich's views. Pure nitrous acid is formed and can decompose the iodides only in acid media; reasoning *à priori*, therefore, sodium bicarbonate ought to be an antidote. Their practical experience has fully borne out this inference. Ten to 12 grammes (154.32 to 183.19 grammes) of sodium bicarbonate is given within twenty-four hours in two doses. This method of treatment possesses the great advantage of cheapness. It was found that when potassium iodide and bicarbonate of soda were given simultaneously, no symptoms of iodism appeared, but iodism promptly manifested itself on the withdrawal of the bicarbonate of soda.

Iodoform.—Caubrelle[67 V.112,No.9] uses the following method of preparing deodorized iodoform:—

℞. Iodoform, . . . gr. xv (0.97 gramme).
Menthol, . . . gr. ¾ (0.05 gramme).
Ess. lavender, . . gr. j (8 gtt. 0.06 cubic centimetre).—M.

In order to remove the odor of iodoform from the hands, apply some spirits of lavender. P. Carles[188 Mar.20] calls attention to the fact that saturated solutions of iodoform in ether become, as the point of saturation is reached, very unstable, and that, under the influence of the slightest causes they are decomposed suddenly, a reddish color resembling that of tincture of iodine resulting. This phenomenon is due to the liberation of iodine. The decomposition is rendered less rapid if the solutions are less concentrated. In saturated ethereal solutions it may be retarded by the addition of alcohol and by keeping them protected from sunlight. W. W. Van Arsdale$^{96}_{\text{Mar.}}$ reviews exhaustively the claims for and against iodoform as an antiseptic in surgery, and expresses the opinion that, as experiments show it to be not potent as an antiseptic in laboratory experiments, whereas it is valuable in clinical experience, the explanation may be that it attacks the products of bacteria. This suggestion, however, is admitted to be only a theory. The greatest benefit, he says, will be derived from iodoform by its use in operations about the mouth, vagina, and rectum, where, owing to its property of destroying ptomaines, it acts as a powerful deodorizer. For the same reason its use on putrid surfaces is to be recommended. A good bibliography is appended to the paper. Joseph Samter$^{4}_{\text{Apr. 15}}$ agrees with Wagner and Rossbach that bromide of potash acts as an antidote to iodoform not only as a neutral potash salt, but also by virtue of its specific bromide action. Samter and Retzlaff,$^{650}_{\text{July 11}}$ explain this property of potassium bromide by stating that it excels all other salts in regard to its solvent property for iodoform.

Lewis S. Pilcher,$^{59}_{\text{June 1}}$ gives an example of the antitubercular power of iodoform. The patient, a girl aged 13, suffered from tuberculosis of the skin. Topical applications of iodoform caused the bacilli to disappear, and the wound healed nicely with the aid of skin-grafting. Demme$^{116}_{\text{Apr.}}$ has met with a case of iodoform poisoning, in which chorea occurred as one of the symptoms. The patient was a boy, 6 years old, who was operated on for retropharyngeal abscess, and had iodoform freely used in the fistula and in the dressings. Iodol subsequently also produced chorea. W. C. Kloman$^{104}_{\text{Sept. 12}}$ relates the following case of dermatitis appearing after the use of iodoform locally: A painful, indolent leg-ulcer was dusted with iodoform. In a few hours the patient was in great pain; skin hot, but not dry; pulse 120, full and strong; there was great chilliness, with severe burning and scalding in the leg. The leg was found to be the seat of an acute dermatitis; the skin was injected, and numerous large watery blebs were found, some of which had broken, wetting the entire skin. The whole epidermis was loosened. Next day he still complained of malaise, with heavily-coated tongue and copious diarrhœa. The entire surface of the body was scarlet red, and the epidermis peeled off in small furfuraceous scales. There was tumefaction of the leg and of the palmar surface of the fingers. The patient did not recover until after the fourth day. Koriandère[678, Sept.] found the following changes in dogs poisoned by iodoform. In acute and chronic cases were found inflammation of the glomeruli of the kidney and fatty infiltration of the liver, principally around the periphery of the lobules. In chronic cases were found also extreme emaciation, general anæmia, purulent bronchitis, rhinitis, conjunctivitis, and accumulation of pigment in the Malpighian bodies.

P. Carles[672, Apr.5] says that while a saturated solution of iodoform in ether is very unstable, iodine being set free, a less saturated solution is more stable. Presence of alcohol and absence of light render such a solution still more stable. A solution which is brown in color can safely be used, as the amount of free iodine evolved is so small that there will be no harm done by its presence.

Iodol.—Dante Cervesato[4, Jan.14] thinks that iodol possesses especial value for internal medication, because it is harmless, tasteless, and odorless, and also because of the large amount of iodine contained in it and the free elimination of this iodine in the system. The author has used iodol in the treatment of scrofulosis, diseases of the respiratory tract, and in tertiary syphilis. In the treatment of scrofulosis, the iodol was given continuously for two or three months in daily doses of 0.50 to 1.50 grammes (7¾ to 23 grains). In adenitis, besides the above treatment, a salve composed of 1 part of iodol and 15 parts of vaseline was used. Having observed the good effects iodoform accomplished, Cervesato was led to try iodol in respiratory troubles. Inhalations and insufflations were added with success to the internal treatment. In tertiary syphilis he has had the best results by the use of this drug. Iodol is very well borne by the system, having no effect on the normal temperature, circulation, or respiration. The writer can give no reason to account for the fact that iodism is of so rare an occurrence when iodol is administered.

Talenti[9, Apr.6] concludes, from his experience with iodol in the treatment of eye diseases, that the powder is to be preferred to the ointment, as it is not irritant, and therefore can be applied directly to the eye. In the treatment of catarrhal conjunctivitis it is of great value.

Ipecacuanha.—Ernest Sangree[780, Aug.10] reports a peculiar case of idiosyncrasy to ipecac. Nausea, vertigo, and flushing of the face manifested themselves after the administration of a little less than 2 drops of the wine of ipecac.

Jaborandi.—J. B. Carrell[19, Jan.11] asserts that jaborandi will cure a pneumonia in three or four days if it is administered in the congestive stage and free diaphoresis is secured. He declares that in his practice a temperature of 105° F. (40.55° C.), in congestion of the lungs, has repeatedly been reduced to a temperature of 99.5° F. (37.50° C.) within twenty-four hours by the use of jaborandi. J. R. McCorkle[62, Mar.1] speaks well of its use in erysipelas and as a relaxing agent in obstetrical practice.

J. G. Marshall[6, Dec.22,'88] cites a case of Bright's disease in which hypodermic injections of ¼ grain (0.016 gramme) of pilocarpine greatly reduced the œdema and dropsy. Eliza Mitchell[102, Dec.,'88] and I. N. Brainerd[234, Apr.] read papers on pilocarpine before their respective county medical societies. Discussion by various members followed. L. B. Hayman[231, Apr.] thinks that he prolonged life in a case of serous effusion from chronic nephritis by subcutaneous administration.

Juniper-berries.—As a diuretic for young children, 2 to 3 teaspoonfuls of the juice of the common juniper-berries are highly recommended by Vogel. Goldschmid[214, Dec.1,'88] had occasion to try this treatment in a case of renal dropsy, and was much pleased with the result.

Kola-nut.—R. H. Firth[15, July] has made some interesting experiments on himself and others to determine the value of the kola-nut. He concludes that this nut (which contains 2.4 per cent. caffeine and .02 per cent. theobromine) is a drug and not a food. Diuresis is produced and the oxidation of the tissues is increased, probably by the caffeine. By the use of pure and fresh nuts the heart-beat is strengthened and the arterial tension increased. The author does not consider that the power of the drug to ward off mental and physical fatigue from exertion and fasting to be as marked as is usually ascribed to it. Its astringent property makes it a valuable substitute for tea and coffee in the case of those suffering from diarrhœa. Heckel[2, Sept.28] has prepared kola cakes for soldiers and horses having hard work to perform.

Lacquer Poisoning.—Lacquer is derived from the *rhus vernicifera.* D. W. Prentiss,[80] cites a case of poisoning, in America, resembling the usual rhus-toxicodendron poisoning; it was relieved by a 1-per-cent. solution of carbolic acid in equal parts of linseed-oil and liquor calcis. In Japan this form of poisoning is quite common.

Lactic Acid.—William B. Eager[40] warmly recommends concentrated lactic acid as a topical application in epithelioma, lupus exedens, encephaloid cancer, tinea versicolor, and tylosis. Cases indicating its usefulness are given.

Lactose.—Germain Sée,[10] considers lactose to be the most powerful and efficient diuretic that we possess, and that to it alone is due the diuretic action of milk. Every litre (quart) of milk that is given contains 50 grammes (1 ounce 7 drachms) of sugar of milk, and if the volume of milk be 4 litres (4 quarts) we are, indeed, giving 200 grammes (6 ounces 3 drachms); but there is danger that such a quantity of sugar will produce glycosuria and a considerable loss of urea. One hundred grammes (3 ounces 2 drachms) of lactose, however, taken in 2 litres of water, will produce an enormous diuresis, and it is free from the above objections. The amount of the urine is increased to 3½ or 4½ litres (7 or 9 pints) on the third day. The diuresis remains stationary for several days, and then returns to 2½ litres (5 pints). This diminution is due to the fact that the blood is dehydrated and the dropsical swelling absorbed. The drug acts as a sure diuretic in the dropsies of heart disease, but there may be a total failure to act in the dropsies of renal origin. Indeed, this medicament can be used to test the state of the kidneys and discover how far the Bright's disease is advanced. Lactose is superior to caffeine from the fact that there are never any nervous or cerebral symptoms produced, such as may occur when caffeine is used. Sée's observations cover 25 cases. In only 2 of these were there any ill effects noted, and in these diarrhœa was produced.

Lanolin.—A. Gottstein,[116] in a most interesting paper, has reviewed the work of Koch and Wolffhügel, who demonstrated that if a disinfectant, such as carbolic acid, be dissolved in oil or alcohol it loses its disinfecting power. The base used was lanolin, and bichloride of mercury was the antiseptic. It was found, by repeated experiments with vegetable fungi, as *M. prodigiosus*, sporules from dried earth, and bacilli (anthrax), that a 1 to 5000 to 1 to 1000 mixture of bichloride and lanolin prevented the formation of cultures. He therefore comes to the conclusion that the bichloride, when mixed with anhydrous lanolin in the form of a salve, possesses the same antiseptic properties as when the bichloride is in solution. He thinks that ointments prepared with watery solutions of a drug keep their full power when the drug is more soluble in the water than in the fat. As a disinfectant for the hands, there would be danger of mercurial poisoning from its constant use. For wounds it possesses advantages over a bichloride solution from the fact that a minimum amount of the bichloride is used; the substance is in direct contact, and the action is much more prolonged. E. Stern$^{116}_{\text{Feb.}}$ prepares a lanolin soap by mixing 2½ parts of anhydric lanolin with 2 parts of sapo viridis and any desired medicament. It must be borne in mind, however, that salicylic acid will not enter into combination with such a soap. In order to prepare an adhesive ointment, use cer. flav. and lanolin anhydr., āā 2 parts; ol. oliv. (or, in summer, ol. benzoin), 1 part. For injections (salicylic acid can here be used), 1 part of lanolin to 3 parts of the oil of bitter almonds.

Oil of Lavender.—Bec$^{100}_{\text{Sept.3}}$ speaks of the property which the oil of lavender has for checking decomposition, and refers to a case in which the oil appeared to have prevented the decomposition of the body of a man for a period of nearly two years after burial.

Lead Acetate.—In the International Therapeutical Congress, held at Paris during the Universal Exposition, Trocy$^{67}_{\text{Aug.15}}$ highly recommended the use of lead acetate in the treatment of pneumonia, especially in the pneumonias of debilitated persons and of drunkards. By its use the frequency of the respiration is lessened, the temperature is lowered, the râles diminished in number, and the pneumonia is prevented from becoming chronic. At times it is necessary to check the action on the bowels by means of laudanum. The minimum dose to be used is 0.4 grammes (6⅛ grains), and in adults as high as 4 grammes (62 grains) may be given in the twenty-four hours. This treatment may be continued twelve or fifteen days without any inconvenience. Stimulants may be employed if necessary.

Lipanin.—On the theory advanced first by Buchheim,$^{278}_{\text{v.1,77}}$

that the action of cod-liver oil depends on its containing free fatty acids, and also because oleum morrhuæ is often ill borne, especially by children, and is very unpalatable, v. Mering was led to prepare as a substitute lipanin, *i.e.*, fine olive-oil, partly saponified, containing 6 per cent. fatty acids. This preparation was tried in a series of cases (children) by Demetrius Galatti.$^{158}_{\text{B.11,H.1}}$ He finds that (1) lipanin is palatable and well borne, even by children; (2) in most cases the weight increases considerably; (3) the appetite is improved invariably; (4) the morbid process of tuberculosis seems not to be influenced. As a commencing dose for children, from 1 to 2 drachms (3.90 to 7.77 grammes) are used, alone or in combination. A great drawback to the use of the preparation is its costliness.

Locust-leaf.—A case is reported by Robert Coltman,$^{19}_{\text{Aug.21}}$ of Chinanfu, China, in which locust-leaves had been eaten, presenting much the character of general erysipelas, with tense, shining skin, and infiltrated cellular tissues. The treatment consisted in purging and light diet.

Loco-weed—Astragalus Mallisimus.—Mary G. Day,$^{80}_{\text{Apr.}}$ experimenting on cats with a decoction of loco-weed, obtained the following symptoms, the result of daily doses: Less activity, rough coat, fondness for the drug, diarrhœa, retching, tetanic convulsions on the twelfth to eighteenth day, paralysis, and death. The greatest amount of poison is present in the leaves in autumn and winter. The same writer$^{1}_{\text{Nov.30}}$ thinks that she has obtained the poisonous principles of the loco-weed. They are said to be in the form of crystals, and are to be further studied.

Lycopodium.—Langer$^{896}_{\text{No.10;}}$$^{84}_{\text{July 27}}$ found in the spores 49.34 per cent. of oil, which contained glycerides of two new acids. The first spores yielded only one acid, older ones yielding the second. This may explain the fact that in some cases of vesical catarrh and gonorrhœa the seeds possess most positive properties, while in the majority of cases they are without value.

Lycopus Virginicus.—W. S. Hector$^{192}_{\text{June}}$ considers the *lycopus virginicus* to be useful in both functional and organic diseases of the heart, and he cites a case to show its prompt action. Having heard that a case of exophthalmus was cured by its action, he recommends a further trial of the drug in this affection.

Manzanillo.—A. Betancourt$^{778}_{\text{Nov.20,'88;}}$$^{25}_{\text{Feb.}}$ gives a description of a milky juice found in manzanillo, which the Indians are said to use as an arrow-poison. If applied externally there is corrosive action, and, internally, 18 to 20 drops will produce grave symptoms, which may end in death. These symptoms consist in marked irritation of the digestive tract and derangement of the nervous system, as shown by giddiness, sweating, and cold extremities. Alcohol is to be given as an antidote. If 2 to 3 drops of a preparation, consisting of 1 part of the juice to 3 of honey, be given in milk, ten to twelve movements of the bowels will be produced without any pain. Betancourt has used this drug in 57 cases, and on account of the great repute with which it is held in Cuba for the treatment of tetanus, he has given it for that disease in 8 cases. In 3 of these benefit was derived; but chloral and other sedatives were administered at the same time. The remaining 5 cases proved fatal, but the severity of the tetanic symptoms was much modified. Manzanillo is both a diuretic and a drastic; it can be used for a long while with benefit in those diseases in which a hydragogue cathartic is desired.

Massage—Gymnastics.—Baron Nils Posse[90, May], gives the indications and mode of execution of active, resistive, and passive (assistive) movements, or, in other words, of gymnastics and massage. He reports several cases, showing the value of medical gymnastics in diseases of the heart, general circulation, respiratory organs, organs of locomotion, and in neuralgia. Frank R. Fry[40, Nov.] believes that general massage is the most valuable and practical application of that useful therapeutical agent. Mary A. Spink[56, Oct.] thinks that the success of Christian scientists is often due to massage. Kendal Franks[16, Sept.] gives a *résumé* of those who have used massage and the purposes for which they have used it. G. Tedeschi[587, No. 6] reports a case of lead poisoning cured by massage after the usual treatment had failed. By this means, he says, the urine is increased in quantity and the lead eliminated more promptly than by any other method. By mechanical treatment Le Marinel[276, Sept. 6] means a mixture of massage and medical gymnastics. His paper is interesting, the subject being treated historically, physiologically, and therapeutically. In 3 cases of sciatica this treatment was followed by marked success. In the first case, a sciatica of two months' duration, the massage and movement, at the start, increased the pain and restlessness, but after several daily applications there was an amelioration of the symptoms, followed by a complete cure. Wm. Calwell[16 Aug.] strongly advocates the mechanical treatment of disease in general. It acts in three ways: First, by stimulating cutaneous nerve-endings; thus parts are reflexly stimulated, as shown by a quickened respiration and pulse and by increased peristalsis. Again, it causes increased circulation in the skin and in the deeper vessels. Lastly, there is the mechanical effect on the lymph of squeezing, which increases its flow. Baudet[34 Sept.17] recommends local massage, especially in throat and abdominal affections, such as tonsillitis, pharyngitis, laryngitis, "hyperæmia of the head," habitual constipation, hyperæmia of the liver, and perhaps also in ileus. In nervous diseases, except writers' cramp, it is less applicable than other means at our command. Korteweg[34 Sept.17] speaks also of the good massage does in increasing the lymph-stream, as in stiffness after a fracture, and he points out that much evil may be done in infectious inflammations by its use. H. Keller,[214 July 1] in experimenting on himself to find the effect of massage on the chemical changes occurring in the body, obtained the following results: There was no change in the body-weight nor increase in the amount of urine; there was an increased excretion of nitrogen, of the sulphates and chlorides, of phosphoric acid, and of lime-salts.

A Polubinski[586 No.22] finds that massage of the abdomen increases the volume of the urine and the quantity of its solid constituents. The experiments were made with 10 healthy persons, the amount of food and liquid introduced into the system being constant. Massage of the lumbar region did not increase the quantity of urine. G. Berne,[35 June 30] when treating by massage non-neurasthenic patients with constipation, does not approve of putting them to bed. A daily *séance*, lasting fifteen to twenty minutes, is enough. It is not necessary to put the patient on a special diet. Light pressure on the gall-bladder is necessary. Adolphe Wahltuch[26 Apr.] finds it of great use in rheumatism, neuralgia, and obesity. Centripetal stroking caused the infiltration left after an attack of acute eczema to disappear in fourteen days. Glovetsky,[586 No.3] in experimenting on dogs and men, found that the upper half of the body increased markedly in weight after the *séance*. During the sitting the limbs increase in volume. Blood-tension and intra-cranial pressure rise, the elevation lasting for a time after the sitting. The pulse is at first slow and smaller, but toward the end of the sitting and later it is slow and full. Breathing is more energetic. In artificial asphyxia in animals it has a beneficial influence on cardiac action.

Melilot.—Carrey[276, Sept. 5] speaks of the death of three horses after having eaten of the seeds of this plant. The symptoms were adynamic paralysis and feebleness of the pulse. Collas has also seen death caused by it in ten sheep.

Menthol.—Jores[116, Apr.; 26, June] administered to a woman with asthma and congestion of the head a few drops of a 20-per-cent. solution of menthol in olive-oil by inhalations. Before administration crepitation and rhonchi were heard on pulmonary auscultation. The remedy always checked the asthmatic attack; breathing became normal, the heart's action remained unaltered, and the pulse full and strong. The patient sometimes complained of dizziness. McLaury[786, June] suggests the following prescription for the internal administration of menthol in hemicrania, infra-orbital neuralgia, cephalalgia, rheumatism, and in sciatica. The dose varies from 4 to 15 grains (0.26 to 0.97 gramme):—

℞ Menthol, ...	ʒij (7.78 grammes).
Alcohol, ...	f℥j (31.00 grammes).
Glycerin, ...	f℥j (31.00 grammes).
Syrup, ...	f℥j (31.00 grammes).

M. S.: One teaspoonful in warm water when required.

Saalfeld[45, H.1] finds a 3- or even a 6-per-cent. solution in spirit more effective in pruritus than boric or salicylic acid. An ointment of it made with lanolin is very useful in pruritus senilis.

Mercury.—E. Herfeld[1019; 819, Aug. 31] describes a case of chronic mercurial poisoning in a young man, 29 years old, engaged in making airless the incandescent lamps used in electric lighting. He also gives examples of similar cases, especially in those who put the quicksilver on looking-glasses. (See Hydrargyrum.)

Methacetin.—Methacetin is phenacetin in which the ethyl radical has been replaced by methyl. According to Weller,[80, Sept.] its action is similar to that of phenacetin.

Franz Mahnert[8, Mar. 26] describes methacetin as a pale-red, odorless, slightly saltish and bitter powder, made up of small, flat plates, soluble in cold but better in warm water, and in alcohol. It melts at 127° C. (160.6° F.). Doses of 3 grammes (46 grains) are fatal to rabbits, causing spasms in the posterior and, later, in the anterior half of the body similar to those in antipyrin poisoning. It affects also the central nervous system. It may cause a fall in temperature of 4° C. (39.2 F.) or more. The urine shows reducing properties and is free from hæmoglobin. Post-mortem there is found considerable hyperæmia of all the organs, and the heart is flaccid and filled with blood-clots. The author used it in various diseases in which fever was present, and always obtained a fall in temperature. In children it is antipyretic in doses of 0.20 to 0.30 gramme (3 to 4½ grains). Sweat often accompanies the fall of temperature. In one case, in a tuberculous girl, a dose of 0.20 gramme (3 grains) was followed by collapse. From his experiments he finds the drug to be well borne, and has seen no unpleasant nervous symptoms, nor have the digestive organs been disturbed. He concludes that it is deserving of more study.

Methyl Chloride.—Huchard is quoted[80 Feb.] as declaring that spraying with chloride of methyl acts well in spinal irritation, exophthalmic goitre, chorea, and various other nervous troubles. Gurel[85 Jan.2; 80 Feb.] reports a case of laryngeal cough cured by the application of the spray of the chloride of methyl to the neck and upper part of the back. George W. Jacoby[1 Jan.5] calls attention to the fact that the chloride of methyl can now be obtained more easily and that it is cheaper than it formerly was. The writer thinks the preference should be given to it over all other freezing agents (including condensed carbonic acid) in neuralgias and various other forms of pain. If a general action is desired, as in sciatica, the spray should be used; if a direct local action, as in the neuralgia of small nerves, *stypage* (a wedge of cotton is exposed to the spray, covered with silk, and applied to the skin) should be employed. Bardet's method of wetting the skin with glycerin and then freezing it makes the action much more powerful and prolonged, but should not be used until an idea of the susceptibility of the patient's skin is obtained by the direct action of the spray, as one is not able to observe the changes in the color of the skin, and eschars may thus be produced. W. Vignal[25 June] says Regnault has called attention to the fact that there is an English preparation, improperly designated as chloride of methylene, composed of a mixture of ¾ chloroform and ¼ ethylic alcohol. This preparation is useful in producing anæsthesia, but must be used with great care. The use of the true chloride of methylene is attended with such dangerous results that it should be proscribed.

Methylacetanilide—Exalgine.—There are obtained from acetanilid with methyl three compounds, para-, ortho-, and meta-acetanilid.[178 May 27] Dujardin-Beaumetz and Bardet have named the ortho compound exalgine. This new preparation,[116 May] discovered independently by Hepp and Hofmann in 1877, is known chemically as methylacetanilide. It is but slightly soluble in water, but very easily so in water to which a little alcohol has been added. While the drug has antithermic and antiseptic properties, the analgesic properties predominate. For this purpose it is given in 0.25 to 0.40 gramme (4 to 6 grains) in a single dose, or 0.40 to 0.75 gramme (6 to 11½ grains) in the twenty-four hours.[80 May] G. Bardet[296 Mar. 24] recommends that 1 to 3 tablespoonfuls of the following combination be given in the course of twenty-four hours:—

℞ Exalgine, ...	ʒj	(4.00 grammes).
Cherry cordial, ...	fʒx	(38.87 grammes).
Simple syrup, ...	℥j	(31.00 grammes).
Distilled water to make . . .	℥v	(155.00 grammes).

Dissolve the exalgine in the cherry cordial and then add the syrup and water.

It is eliminated by the kidneys, and it is said to lessen both the quantity of sugar and amount of urine in diabetes.[25 June] There has not as yet been noted intestinal irritation or any rash following its use, though in one case slight erythema occurred.[26 June]

Binet,[296 June 8; 80 Aug.] states that the drug diminishes motor power in all animals. It produces local paralysis at the seat of injection, arrests the heart, diminishes the amount of oxyhæmoglobin, and interferes with oxygenation of the blood. Its antithermic action is as marked as that of acetanilid. Given subcutaneously, it produces, within one or two minutes, clonic epileptiform convulsions, with profuse salivation, the convulsions being separated by periods of relapse, in which there is cyanosis and difficulty in breathing. The convulsions may, it is said, be arrested by inhalations of ether. The convulsions are of cerebral origin, but with a certain degree of spinal excitation. Temperature is reduced within ten minutes after injection, and obtains its maximum in from three-fourths to one hour later. With medium doses the fall in temperature amounts to 2° to 3° C. (3.6° to 5.4° F.), with poisonous ones to 10° C. (18° F.). The reduction also follows internal or rectal administration of the drug. Small doses cause slight increase of blood-pressure, the pneumogastric remaining irritable. Dujardin-Beaumetz[67, Oct. 30] thinks that great progress has been made in the treatment of locomotor ataxia by means of suspension and the various new analgesics. He considers methylacetanilid as the next best analgesic to antipyrin, and says that if the methylacetanilid were more soluble it would take rank above antipyrin, as it is more active, and an eruption never appears from its use. In order to get the drug in solution, exalgine is given in alcohol, with flavoring syrups to suit the taste.

Monobromated Camphor.—John Stevens[24, July 14] recommends the monobromate of camphor in 0.6-gramme (9.00 grains) doses in epilepsy.

Morrhuol.—See Cod-liver Oil.

Mutisia Viciæfolia.—Saac[296, July 8; 8, Sept.] thinks that its active principle is due to a bitter material found in the seeds. It is used by the Indians in epilepsy and cardiac diseases. H. Rusby considers it valuable in the disturbed cardiac action due to the ascent of high mountains.

Myrtol.—Eichhorst[113, No. 42, '90; 673, Feb.] considers that myrtol, in capsules of 0.15 gramme (2⅓ grains), three times daily, is of great benefit in putrid bronchitis and gangrene of the lung, and in fetid sputum of bronchiectasis. It does not cause untoward symptoms, but may disorder the stomach slightly, causing anorexia. Jahns,[26, June] on the other hand, maintains that every purpose for which it is useful would be served equally well by eucalyptol. H. Eichhorst[116, Jan.] considers myrtol to be one of the best disinfectants of the trachea which we possess. It is best given in capsules in doses of 0.15 gramme (2⅓ grains). The odor is powerful, a single dose giving a distinct odor to the breath for two days. In putrid bronchitis and gangrene of the lungs its use is often quickly attended with benefit. In too large doses (2 to 3 capsules every two hours) there is danger of disturbing the stomach. Tubercle bacilli are said not to be diminished in numbers by its use.

Naphthol.—The list of new antiseptics continues to increase. It would be well if some substitute could be found which would take the place of iodoform collodium, and Helbig[116, Feb.] thinks that he has found such a substitute in a 0.5 per cent. collodion prepared from alpha-oxynaphthoic acid, as it does not irritate the skin and is much more stable. Antiseptic wool can also be prepared with it.

Adrian Schücking[57, p.668; 22, May 22] reports some details of the use and effect of the alpha-oxynaphthoic acid. He recommends it in those cases in which we desire a very energetic and almost insoluble antiseptic. It has a rather astringent action in dilution, and a cauterizing effect under certain conditions. Dissolved with the addition of phosphate of sodium, it was found to be no less reliable than the common antiseptics. Désesquelle[28, Sept.] has found that if 2 parts of camphor be heated with 1 part of β-naphthol, there results a liquid which will dissolve the fixed and volatile oils, the alkaloids and iodine.

With such a preparation Bouchard[433, Jan.12; 51, Apr.] has found that excoriations, wounds, and ulcerations heal with great rapidity. John V. Shoemaker,[61, May 11; 80, Oct.] in reviewing the literature of the β-naphthol and hydro-naphthol controversy, is of the opinion, with Merck,[581, V.3, No.7] that hydro-naphthol is an impure β-naphthol, and, with Bouchardat,[581, V.3, No.3] that β-naphthol is absolutely safe in the manner in which it is usually employed. Petresco[67, Oct.15] has treated 25 cases of typhoid fever with β-naphthol, and has had only one death, which, however, could not be attributed to the inefficacy of the naphthol, but rather to the intensity of the typhoid infection and to its complication with infectious endocarditis.

Naregamia Alata.—Hooker[80, Oct.] has discovered an alkaloid in this plant which he has called naregamine. The natives of Malabar use it to provoke vomiting, relieve bilious disorders and digestive troubles, and to cure rheumatism.

Nitrites.—J. P. Parkinson[2, Sept.14] recommends inhalations of nitrite of amyl in epilepsy before the convulsions. He also uses it in the treatment of pertussis. The views of C. Binz[20, Oct.] in regard to the narcotic action of sodium nitrite have been referred to under hydroxylamine. Collischonn[69, Oct.10] reports 2 cases of nitrous-acid poisoning exhibiting symptoms of gastro-enteritis, followed by those of the formation of methæmoglobin. Noteworthy is the absence of renal disturbances (except simple diuresis) corresponding to the condition in nitro-benzol poisoning. From the clinical history it must be inferred that the substance is eliminated very rapidly.

William C. Kloman[1, Oct.26] administered hypodermically, to a girl poisoned with illuminating gas, $\frac{1}{60}$ grain (0.001 gramme) of nitroglycerin, with the happiest results. She had been exposed to the injurious effects of the gas for seven hours, and when seen was perfectly comatose and unable to swallow.

Nutmeg.—Five nutmegs, eaten by a boy 3 years old, are reported by Amos Sawyer[1, Sept. 28] to have caused a deep, easy sleep of thirty hours' duration, with no untoward consequences.

Nux Vomica.—John G. Musser[271, Feb.] thinks the reason why physicians are often disappointed with nux vomica and strychnia is from the fact that too small doses are employed, or that they commence with too large a dose. He recommends that 10 to 15 drops of the tincture be given, and increased by 5 drops every second day until slight physiological effects are produced, which will probably occur when about 30 or 40 drops, t. d., are reached. If strychnia be used, commence with the $\frac{1}{60}$ grain (0.001 gramme) and increase every second day until $\frac{1}{20}$ or $\frac{1}{16}$ grain (0.003 or 0.004 gramme) be taken twice daily. A coated tongue or sick-headache can often be made to disappear by means of drop doses of the tincture, repeated every two hours in the former case and every ten minutes in the latter condition. B. Naunyn[118, May] emphasizes the fact that hypodermic injections of strychnine do not receive the attention in modern therapeutics that they deserve. This mode of treatment is especially applicable in incomplete paralysis, and even in old cases of tabes, where one would hardly expect any improvement, an amelioration has followed its adoption. But it is in diphtheritic paralysis that the best results are obtained. The injections are to be made at the seat of paralysis, and small doses of from 3 to 5 milligrammes ($\frac{1}{20}$ to $\frac{1}{12}$ grain) are used, to be increased 1 milligramme ($\frac{1}{200}$ grain) a day for ten or twelve days. The treatment is then to be interrupted for six or eight days. There may occur, especially in children, muscular tension, psychical excitations, and vomiting. Pinnoy[6, Mar. 23] has used hypodermic injections of the arseniate of strychnine in 4 cases of phthisis, with apparent good results. Four to 15 minims of a $\frac{1}{2}$-per-cent. solution in liquid vaseline were given daily. A case of recovery after the taking of 6 grains (0.39 gramme) of strychnia is recorded by Herbert Jones.[6, July 27] Chloral was used as the antidote. C. M. Fegen[6, Nov. 9] records a case of strychnine poisoning which resulted from unwittingly eating poisoned eggs. Two or 3 grains (0.13 or 0.19 gramme) were taken. In five minutes cramps began, and were followed by convulsions. Death took place in an hour and a half. In poisoning with strychnine and other alkaloids, C. Sanquirico[464, Nos. 9, 10, '88] warmly recommends intra-venous injections of a considerable quantity of an 8-per-cent. soda solution. By this means an active diuresis is produced and the poison eliminated. The ordinary preventive measures and antidotes should be employed at the same time. The author prefers paraldehyde to chloral as an antidote to strychnine poisoning.

Oils, Essential.—Cadéac and A. Meunier[208, July 18] have been repeating Chamberland's experiments on the antiseptic properties of the essential oils. The oil of cinnamon was found to occupy first rank, and to possess germicidal properties on the typhoid bacillus equal to a 1 to 100 bichloride solution. The ancients knew of the value of these oils, using them in the form of perfumes and for embalming their dead.

Olive-Oil.—C. R. Earley[144, May] says that he uses pure olive-oil freely in many diseases of the stomach and bowels. In piles of long standing it is given by the mouth with wine, and used as an injection combined with salt, boric acid, or sulphocarbolate of sodium and laudanum. He always uses it in snake-bite, and says it has never failed.

Opium.—J. F. A. Adams[99, Oct.10] suggests the new antipyretics (antipyrin, acetanilid, phenacetin), and the hypnotics (paraldehyde, amylene hydrate, sulphonal), and the intestinal antiseptics (salicylate of soda, salol, and naphthalin), as substitutes for the analgesic and hypnotic uses to which opium is put, and also for its use in chronic diarrhœa. Attention is called[305; 62, Mar.15] to the insoluble precipitate produced by adding morphia to a solution containing hydrocyanic acid. As the last dose might contain toxic quantities, it is recommended that a little muriatic acid be added to the solution in order to prevent the formation of such an insoluble precipitate. Séverin Lachapelle[122, Sept.] describes the French preparations of opium and gives the indication for their use.

Reference is made by a Berlin correspondent[26, May] to the fact that Böttrich, of Hagen, has found opium with acetate of lead most efficacious in hæmoptysis when the bleeding has just set in. Huchard[24, Apr.21; 9, May [illegible]] states that he has been able to control a severe "bronchial" hæmorrhage with repeated hypodermic injections of morphine, after the usual hæmostatics had been tried in vain. He had also used it with marked success in cases of hæmorrhage from the uterus and in too copious menstruation.

Case[49, Aug.] approves of opium after surgical operations. He relates a case of cystic ovary in which the woman had great pain, and in which both before and after the operation he used morphia with no bad results. In speaking of the above case, Bantock$^{49}_{Aug.}$ said that, since one of his cases of abdominal section had died from the use of morphia, he had first decreased the dose, and then stopped using it altogether. Patients were much better without it, and escaped the restlessness which follow its use. Bedford Fenwick$^{49}_{Aug.}$ also thought it a serious thing to give opium in abdominal sections. It increased the congestion of the kidneys, and might even be followed by suppression of urine. Further, it produced atony of the muscular coats of the intestines, and finally stopped pain, which is a powerful stimulant to the heart. Heywood Smith$^{49}_{Aug.}$ corroborated all that was said by Bantock. He once saw a case in which $\frac{1}{4}$ grain (0.016 gramme) of morphia, given after abdominal section, was followed by death. R. T. Smith$^{49}_{Aug.}$ related a case in which two doses, one-fourth each of morphia, was followed by suppression of urine for twenty-four hours. Frank Nicholson$^{2}_{July 20}$ reports the case of a woman who took an ounce of laudanum, intending to commit suicide. Treatment was begun three hours afterward. The stomach was washed out, atropia given, $\frac{1}{16}$ grain (0.004 gramme) altogether, the faradic current applied, and in six hours the patient was restored to consciousness. George E. Frell$^{9}_{Dec.5,'88}$ strongly advocates forced respiration by mechanical appliances in cases in which artificial respiration has proved futile. He relates, in proof of the value of this method, several very remarkable recoveries from opium narcosis. "V. L."$^{164}_{Apr.4}$ urges that the alkaloids of opium, especially morphine and narceine, fulfill all the therapeutic indications of the drug itself, while they possess at the same time the advantage of being constant in composition. Guido Rheiner$^{116}_{Sept.}$ has tried codeine as a sedative in the treatment of pulmonary diseases, acute and chronic. The drug was used in a large number of patients of various ages. The mind was little influenced, while the cough was, in the vast majority of cases, promptly and lastingly decreased or actually suppressed.

Morphine in small quantities has been found in the Eschscholtzia Californica by Bardet and Adrian.$^{363}_{Nov.22,'88}$

Linde$^{209}_{Sept.17}$ says that the cause of the precipitate which takes place in a solution of hydrochlorate of morphine in bitter-almond water is benzaldehyd, which first separates the salt in the form of pure morphine, and then decomposes the latter into oxydimorphia and morphetin in the presence of light. Prussic acid is not a direct factor in this decomposition.

William Bourke[272, Aug.] mentions a case of rapidly fatal morphia poisoning, the man dying in an hour and a half after taking about 30 grains (1.95 grammes) of the drug. W. F. Conwell[106, Feb.] reports a recovery after a supposed dose of 20 grains (1.30 grammes) of morphia. Hypodermics of sulphate of atropine were used until $\frac{1}{6}$ grain (0.01 gramme) had been given.

Wm. Eddowes and Arthur Jackson,[2, Dec.] in treating a case of sarcoma, began with ordinary hypodermic doses of morphine, but in about four months the patient required 25 grains (1.62 grammes) daily, in another month 36 grains (2.33 grammes), and at the time of death, eight months from the beginning, 70 (4.53 grammes) and even 80 grains (5.20 grammes) *per diem*. The largest single dose was 27 grains (1.75 grammes). Atropine, in $\frac{1}{150}$-grain (0.00043 gramme) doses, was given throughout. In the beginning there was constipation. While taking 30 to 40 grains (1.95 to 2.60 grammes) daily, an occasional dose of oil was needed, but later no aperient was required. An abscess formed once.

Another case of the tolerance of large doses of morphia is given by G. Ryding Marsh,[2, Dec. 22] who administered to a woman with carcinoma of the uterus increasing doses of acetate of morphine in pill and liquid form, reaching, finally, 66 grains (4.30 grammes) *per diem*. No effect was noticed except relief of pain, and constipation was very slight. Huchard[700, May 26] insists on strict silence and repose after the hypodermic use of morphia. Konrad Alt[4, June 24] draws the following conclusions from a series of experiments on dogs to determine if morphia be excreted by the stomach when given hypodermically. Such excretion takes place, and amounts approximately to one-half the quantity given. It begins two and a half minutes after the injection, continues plainly for half an hour, and ceases in fifty to sixty minutes. Tendency to vomit comes on after the excretion begins, and may be avoided by washing out the stomach. By continued washing out of the stomach the toxic symptoms are greatly diminished, and doses otherwise fatal may be borne with safety. Experiments made on 3 healthy men showed morphia two and one-half minutes after its administration. The excretion lasted one hour. Experiments made by Hitzig[75, July 1] corroborate those performed by Huchard. Chaber[85, June 30] gave a consumptive, aged 24, to whom he was called on account of dyspnœa, 1 centigramme ($\frac{1}{6}$ grain) of morphia hypodermically. The dyspnœa was quickly relieved, but death followed shortly. J. Du Bourg,[35 July 18] has had 2 cases of death from morphine. One was a case of heart disease, alcoholism, hypertrophic cirrhosis, with icteric and gouty history. There was great dyspnœa, and ½ centigramme ($\frac{1}{12}$ grain) was given. Death came suddenly in twenty minutes. The other was a case of typhoid fever, with wild delirium. The same dose was given, and death followed in fifteen minutes. Arpád Bókai[57 Jan. 27; 80 Mar.] recommends picrotoxine as antidotal to morphia, asserting that it is antagonistic to the latter in its action on the respiratory centres, morphia paralyzing and picrotoxine stimulating them. Again, morphia may endanger life through lowered blood-pressure, while picrotoxine powerfully stimulates the vasomotor centres. Finally, the action of morphia on the cerebrum is opposite to that of picrotoxine.

A case of poisoning by codeine is mentioned by David Welsh[2 Sept. 28] in which the patient took about 8 grains (0.52 gramme) of the drug. Ten minutes after his pulse was 142 and weak; respiration 30, sighing. He was given an emetic, followed by whisky, and in a few hours his pulse was 120, full and bounding, and there was intense itching over the whole body. The man recovered.

Ormosine.—Ormosine is the name given to an alkaloid extracted from the seeds of the *Ormosiæ dasycarpa*, a native of Venezuela and British Guiana. It is said by Kobert to have a narcotic effect resembling that of opium.[28 June]

Ouabaïo.—Henri Cathelineau[67 Aug. 15] describes ouabaïo, a heart poison, which Reveil found in use among the Somalis, on the east coast of Africa. The active principle is ouabaïne, a glucoside twice as toxic as strophanthin. It belongs to the family of Apocynaceæ.

Oxalic Acid.—Charles Bage[285 Apr.] reports a fatal case of poisoning with oxalic acid, which occurred in the case of an intemperate woman 50 years old. The post-mortem appearances are described. In the case described by Weiss,[197 Apr.] also fatal, the victim was a man 70 years old. Death occurred the day after the poison was taken. The symptoms were cramps in the stomach and intestines and spasms of the larynx.

Oxygen—Ozone.—Guilini[34] read a paper before the *Aerztlicher Localverein* of Nürnberg in which he declared, upon the authority of Kammerer, that Leuder's ozone-water is a solution of hydrochloric acid, probably made by the distillation of chloride of lime with boric acid. Donatien Labbé[24] describes special forms of apparatus by which ozone can be prepared from oxygen by means of electricity. He considers that ozone thus prepared is free from the injurious properties so often noted by other observers. The physiological action on the blood is considered, and ozone is commended for its therapeutical action in constitutional diatheses, such as tuberculosis and chlorosis. Victor v. Gyurkovechky[118] has tried inhalations of oxygen in several cases with very good results, and, according to his experience, gives the following indications for their use: 1. Acute and chronic conditions of blood overcharged with carbon dioxide. 2. Anæmias (chlorosis, simple anæmia, and leukæmia). 3. Atonic indigestion, slow convalescence, and nervous diseases debilitating the system. The inhalations have proved agreeable and utterly harmless. Contra-indications are highly-developed aneurisms near the heart and hæmoptysis. Even in extensive valvular lesions the careful use of this therapeutic agent has proved very efficient. W. Gilman Thompson[15] gives the following summary of his conclusions regarding the therapeutic value of oxygen inhalation: He finds it useful in the various forms of dyspnœa, in those cases in which the lungs are not sufficiently inflated, and in emergency oxygen can be given abundantly. In other cases usually enough oxygen is administered if the oxygen be given through one nostril and air be permitted to pass through the other. Pasquale de Tullio[589] applied inhalations of cold air, according to the method of Scervino, as a hæmostatic in abundant hæmatemesis. Quick relief followed, even after drugs had failed. He describes and recommends a special form of apparatus for the inhalations. Cresswell[15] reports successful results from inhalations of oxygen in 588 cases of scarlet fever. In the cases classed as hopeless the inhalations effected temporary improvement; in the mild cases it caused marked improvement, especially in the badly nourished; in the cases of medium severity there was less nausea, less fever, increased diuresis, lessened delirium and anorexia; in the very severe cases, not necessarily hopeless, all the patients reached perfect health, and during the attack had less albuminuria than was commonly found when oxygen was not used. Oxygen was also of value in the lung complications of the fever, especially when they were associated with kidney lesions. Samuel S. Wallian[121, Feb.] declares that the only advisable and practical method (from a medical point of view) of preparing this gas is from a mixture of potassium chlorate and manganese dioxide. He gives the details of the method at length. The dose of oxygen in ordinary cases should be from 2 to 4 gallons at a sitting, to be repeated daily or twice a day, according to circumstances. In emergencies, such as asphyxia, dangerous narcosis, paroxysmal asthma, croup, diphtheria, and cyanosis, he says there should be no restriction of the dose short of giving relief to the patient. Dupont[67, Mar. 30] discusses at considerable length the indications for the use of oxygen. The affections mentioned are chlorosis, vomiting of pregnancy, asthma, emphysema, congestion of the lungs, capillary bronchitis, phthisis, asphyxia (from carbonic-oxide or illuminating gas), surgical anæsthesia, albuminuria, uræmia, obesity, cholera, diphtheria, typhoid fever, and Raynaud's disease.

The Italian physicians, Purgotti and Sacchi,[14, July 21] have studied the action of oxygen in bronchial and pulmonary diseases, and also in nephritis and catarrhs of the stomach. In the latter the stomach was first washed out (*lavage*), and then oxygen was introduced through an œsophageal tube and allowed to bubble through a certain quantity of water left in the stomach after the *lavage*. According to their experience, oxygen, in affections of the organs of respiration and circulation, and where oxygenation of the blood is insufficient, is palliative only; whereas, in "putrid" catarrhs of the stomach its action is radical. A case in point is given. Samuel S. Wallian[101, May] quotes cases from the work of Demarquay, a French surgeon, to show the good effects of oxygen in surgical affections with debility and anæmia. The gas is used both by inhalation and topically. Henry Roscoe and Lunt[6, Aug. 17] suggest a method to obviate the loss of oxygen by diffusion, which takes place in Schützenberger's process for the estimation of oxygen dissolved in water. The method consists in running the aërated water beneath the surface of a liquid containing a measured excess of hyposulphite and a little reduced indigo-carmine as an indicator. In this way the dissolved oxygen is immediately acted upon by the hyposulphite and its diffusion prevented. The reaction is much disturbed by the presence of free acid or alkali. Maximilian Herz,[67, June], reviews Jochheim's treatment of diphtheria with inhalations of ozone, developed by the slow action of concentrated sulphuric acid upon permanganate of potash. He believes that the results obtained cannot be accredited to the ozone alone, but that they are due to the permanganate of potash, which is applied locally in concentrated form, and used in a diluted form as a gargle and as an application. Quinine is also given and inhalations of steam are employed.

Paraldehyde.—C. M. Hay[5, July] compares paraldehyde in 100 cases with the results obtained from the use of sulphonal in 166 cases. The patients suffered from various diseases of the mind, and the following conclusions are reached: 1. That, of the two drugs, paraldehyde is the safer for continuous use and has a wider range of usefulness, as it can be administered where pain, cough, or fever exists. 2. That the effects produced by sulphonal are not always proportional to the dose. 3. That paraldehyde causes less interference with the normal secretions of the body. James G. Kiernan,[139, Sept.] on the other hand, thinks that this drug should not be used, as it disturbs the digestion, and there is danger of forming the paraldehyde habit.

Parthenicine.—An alkaloid was found in *Parthenium hysterophorus*, by C. Ulrici,[90, Mar.] which has the power, in doses of 0.05 gramme ($\frac{1}{12}$ grain), of assuaging neuralgia. The drug has also been used in intermittent fever.

Pelletierine.—Half an ounce (15.50 grammes) of Tanret's pelletierine, given for tape-worm, is reported by E. B. Landis[112, Aug.] to have caused disturbance of the vision, headache, dizziness, and violent retching and vomiting.

Peptone—Pepsin.—C. Rüger,[4, July] gives a quantitative estimation of the preparations of peptone in vogue in Germany, both in regard to the amount of peptone present according to a given quantity of water and the quantity purchased for a given price. He calls attention to those who have studied the digestive action of the juices of plants, especially of the carnivorous variety. A manufacturer has put on the market a preparation called papaya meat-peptone, in which the juice of the papaya is used to peptonize the meat. Rüger claims for this preparation the advantages of having an agreeable taste, being well borne by the patients, not being readily decomposed on exposure to the air, and that it can be given with great benefit in wasting diseases. Théverin[17] thinks that phosphated pepsin is the rational treatment for anorexia, anæmia, and dyspepsia. Henry B. Douglass[5] has found 1 part of scale pepsin to 5 of lanolin of great value in the treatment of ulcers and cicatricial tissue. The pepsin seems to dissolve the cellular element of a scar. In ulcers the action of pepsin ceases as soon as the slough disappears. A writer[142] calls attention to the conditions which go to make up a good peptone. One of the conditions cited may be of interest. It is as follows: Horse-meat should be rejected, absolutely, as manufacturers use it instead of beef in order to lower the price of their preparations of peptonized meat.

Permanganate of Potassium.—W. Stephenson's experience with potassium permanganate rests upon 105 cases.[2] The permanganate was usually given in 2-grain (0.13 gramme) pills, three times a day, and was continued in many cases for two or three months at a time. In only 3 cases was there any complaint of pain after the taking of the medicine, and when the dose was diminished the pain ceased. The writer finds that this drug not only promotes the recurrence of the menses, but is also of service in restraining a too excessive flow. In support of the latter statement, 25 cases out of 27 are cited in which excess, either in time or quantity, was checked. In six weeks J. H. McCasey[82] cured an indolent ulcer of several years' standing by the application of a saturated solution of potassium permanganate every other day for twelve days. It is also valuable, according to the same writer, as a mouth-wash in mercurial salivation, and in the continued fevers when the breath has an offensive odor. For this purpose a few grains dissolved in a glass of water are sufficient. Lwow[26] has used it in 187 cases of various vaginal affections. In 65 cases of blennorrhœa no benefit followed its use, but in chlorotic girls suffering with amenorrhœa beneficial results followed the daily administration of from 4 to 6 grains (0.26 to 0.39 gramme). Involution or atrophy of the uterus, even though two years had elapsed since the birth of the last child, was found to be helped by this remedy.

Petineria Alliozea.—This plant possesses antispasmodic and emmenagogue properties, and is also a diuretic. In Porto Rico a decoction of the root is given to women immediately after childbirth to guard against possible complications.[202, Oct. 10]

Petroleum.—J. B. Amberson[62, Jan. 15] reports a single case each of false croup and asthma benefited by the administration of pure petroleum. Joseph Leidy, Jr.,[80, July] reports the case of a man who was overcome by the vapor of benzine whilst cleaning an oil-tank. When seen he was unconscious; pulse 60 and full, respiration 14 and very weak, temperature 96° F. (35.55° C.), slight cyanosis and feeble peripheral circulation, paralysis of lower extremities, and incontinence of fæces and urine. Artificial respiration and friction restored him.

Phenacetin.—In a most valuable paper, Franz Mahnert[69, Dec. 13, 20, '88] considers phenacetin from a clinical and physiological stand-point. In chemical composition the drug is very similar to acetanilid, and, as prepared by Bayer, is a crystalline powder, of a slightly bitter taste, and only sparingly soluble in the usual menstrua. After numerous observations, he thinks that phenacetin possesses a specific action in the treatment of polyarthritis rheumatica acuta, from the fact that not only does it lower the temperature and relieve the distressing symptoms of the complaint, but it also markedly lessens the duration of an attack. For this purpose a strong individual can take as much as two or three doses a day of 0.90 gramme (14 grains) each. In children the dose should not exceed 0.30 gramme ($4\frac{2}{3}$ grains). For the purpose of testing the action of the different antipyretic drugs now in vogue, antipyrin, acetanilid, chinin, kairin, sodium salicylate, thallin, and phenacetin were given to the same individual under, as nearly as possible, the same conditions in regard to the height of the fever. It was found that 0.90 gramme (14 grains) of phenacetin lowered the temperature more than 1.00 gramme ($15\frac{1}{2}$ grains) of antipyrin, chinin, or kairin, and more than 0.20 gramme ($3\frac{1}{10}$ grains) of thallin; while 2.00 grammes (31 grains) of sodium salicylate had no action on the tubercular fever; 0.30 gramme ($4\frac{2}{3}$ grains) acetanilid acted one hour sooner and lowered the temperature a few tenths more, but the antipyretic action was not of so long duration. Other observations made were that the perspiration was not so marked as after thallin and antifebrin; no ringing in the ears, as after sodium salicylate; or dizziness, as after chinin; and no chilly sensation, such as follows acetanilid. Charts are given comparing the different action of these drugs; also sphygmographic tracing of patient's pulse before and after taking phenacetin. The author cites its value as an antineuralgic. As to bad after-effects, practically none were noticed. Erythema is much rarer than after the use of antipyrin.

In many cases of normal temperature this drug has been given by Berdazzi,[589, No. 342, '88] and careful observations made as to its action on the temperature, pulse, and respiration. If the temperature be lowered at all, and it is rare that it is, there is only a fall of a few tenths of a degree Centigrade. The number of the respirations and the frequency of the pulse were slightly decreased. In intermittent fever and acute articular rheumatism very favorable results were obtained from its administration. In intermittent fever 0.75 gramme (11⅗ grains) were given several hours previous to the chill. While it prevented the occurrence of the chill it had no action on the duration, whereas in rheumatism the attack was shortened and the pains greatly helped. The antipyretic action of phenacetin and thallin are compared by P. Tripold,[8, Feb. 21, '88] of the children's clinic of R. von Jaksch. Thirteen patients, ranging in age from 1 to 13 years, and suffering from tuberculosis, pleurisy, pneumonia, and typhoid fever, were given phenacetin or thallin, or both, and the result recorded. The comparison of the two drugs appears to favor phenacetin. L. Hirschfelder[826, V. 44, No. 4] has come to the conclusion, as the result of his use of phenacetin, that in thirty to fifty minutes a sweating apppears, followed, in one to two hours, by a marked antipyretic action. The lowest temperature is reached in four hours, and then there is a gradual rise. In chronic fever the effect is not so certain, and the patient quickly becomes accustomed to the use of the drug. This writer does not consider the action so favorable in rheumatism as that obtained by the old treatment with salicylic acid. In a few cases a hypnotic action seemed to be produced. The lightning pains and paræsthesia of tabes are removed by its use. Masius[6, Mar. 9] has found that a large dose will lower temperature, whereas small doses have no effect, even though they be given repeatedly. This writer does not consider its antithermic or its analgesic action as well marked as that of antipyrin. It has the advantage, however, of not disturbing the digestion and of having but little taste. S. W. Stevenson and R. S. Young sum up the evidence for and against the phenacetins, the sum total being decidedly in favor of their prompt, efficient, and safe antipyretic and analgesic action. As a hypnotic, James G. Kiernan[189] has seen sleep produced in those suffering from insomnia resulting from simple exhaustion. In melancholia and acute mania no such hypnotic action was observed. Thomas W. Ayers[59] has rarely had to give a second dose to relieve any painful affection. He also notes an hypnotic action following the cessation of the pain in a case of dental neuralgia. On the other hand, M. F. Price[44] has used phenacetin largely, and has not been disappointed in its analgesic properties. If a patient comes to him complaining of pain as a prominent symptom, phenacetin is prescribed, and success follows its administration. He has given as high as 60 grains (3.90 grammes), daily, for two weeks, and has found no bad effects follow its use. As to tolerance of the drug, Pesce[516; 41] reports a case of tetanus cured by the administration of 53 grammes (1 ounce 5 drachms) in nineteen days, and also another patient, suffering from neuritis, to whom 36 grammes (1 ounce 1 drachm) were administered in the course of twelve days. No bad effect followed in either case. W. C. Hollopeter[9] relates that three doses, of 7 grains (0.45 gramme) each, of phenacetin, produced in a woman severe præcordial pains, great dyspnœa, lividity of the whole surface of the body, and a state of collapse. She slowly regained consciousness under ammonia and alcoholic stimulation, but could not be about for a week.

Phosphorus.—Joseph Eichberg[40] calls attention to the different forms of phosphorus which are to be used in the treatment of various diseases. The hypophosphites are useful in wasting diseases, such as phthisis. Phosphorus itself, in oily solution, or the phosphide of zinc, seems to be most suitable in neuralgia and nervous disorders, and the acid salts in various gastric disorders. Indeed, the writer considers that in these acid salts we have the equal, and often the superior, to either the dilute nitric or hydrochloride acid so much used in the treatment of the various forms of dyspepsia. An editorial[112] suggests that investigations should be made to determine the exact influence of phosphorus on bones. Finley Ellingwood[192] thinks that rickets often could be avoided by the early use of the phosphate of soda. Cazeneuve[211] reviews the manufacture of phosphorus, and maintains that it can be carried on without danger of necrosis of the bones of workmen if the precautions adopted by Coignet are adopted generally. The workmen most exposed to necrosis are those who lute the joints of the retorts. The precautions referred to consist chiefly in substituting large retorts, similar to those used in the manufacture of gas, for the smaller ones in common use. The retorts are to be placed in vast sheds, where there is a free circulation of air. Brouardel,${}^{3}_{\text{Dec.5,'88}}$ however, recommends the substitution of amorphous phosphorus for ordinary phosphorus, with the view of preventing the necrosis which is so apt to affect workmen in match factories. On his motion, the French Academy, at its meeting on December 4, 1888, passed a resolution asking for the prohibition of the use of white phosphorus in the manufacture of matches. Hammer${}^{84}_{\text{Dec.29,'88}}$ reports a case of phosphorus poisoning which ran a rapid course. A woman dissolved and swallowed the heads of thirty-eight packages of matches, and died in spite of the fact that the stomach was washed out energetically nine hours after drinking the solution. Samuel Grose${}^{6}_{\text{Nov.2}}$ describes a case of death from phosphorus poisoning in a girl aged 3½ years. The symptoms were more those of a blood poison than of an irritant poison, as there was no vomiting nor any inflammation of the digestive tract. G. V. Poore${}^{6}_{\text{Dec.1,'88}}$ gives a clinical lecture on 2 cases. The first patient was a young woman, 23 years old, who took about 8 grains (0.52 gramme) of phosphorus in the form of a rat-paste. Symptoms (chiefly headache and vomiting) first appeared five hours later. The vomiting seen was never luminous. Pain in the abdomen and jaundice developed later. Death occurred, in about six days, from vomiting and exhaustion. The second patient was also a woman, 38 years old. She was seen within an hour after taking the phosphorus, was treated energetically with emetics, had her stomach washed out, and was given freely of French turpentine-oil. She recovered. Percy V. Dodd${}^{2}_{\text{Oct.19}}$ cites a case in which the symptoms did not show themselves until at least a week after the taking of the poison, and then the symptoms came on with great violence, resulting in death. The patient, a woman, had taken the poison, and, when she saw that the desired effect was not obtained, she attempted suicide by drowning. In this she was not successful, as artificial respiration caused her to regain consciousness; but she revived only to die later on from the toxic effects of the phosphorus.

Physostigma.—Another alkaloid, eseridine, must be added to those already obtained from Calabar bean. Eber has studied its chemical and physiological action.[6, Feb. 23]

A new alkaloid of Calabar bean (eseridine) has been discovered by Bihringer.[60, p. 188] It is closely related to physostigmine, and can be used as a laxative or as a motor excitant. Its action is not cumulative, as is the case with strychnine. The toxic dose is six times greater than that of physostigmine.

Phytolaccæ Bacca—Phytolaccæ Radix.—M. M. Griffith[176, Jan.] considers the extract of the poke-berries to be a reliable remedy in the treatment of obesity; 3- to 5- grain (0.19 to 0.32 gramme) pills of an extract are used, 2 to 3 pills being given before meals. The reduction in weight may be as much as 15 or 20 pounds (7½ or 10 kilogrammes) a month. C. J. Rademaker[279, Apr.] gives a complete analysis of the root. With ether, a volatile substance having an alkaline reaction was obtained. The root has been found to be valuable in the treatment of rheumatism and skin diseases, especially if there is a syphilitic taint present in the patient.

Pichi.—Egasse,[25, June] points out that pichi (*Fabiana imbricata*) is a Chilian diuretic, used in inflammation of the urinary tract.

Picric Acid—Picrate of Ammonium.—C. H. Hughes,[1, Feb. 2] reports the case of a man who, having a constitutional idiosyncrasy against quinine, was given for malaria picrate of ammonium, 1½ grains (0.197 gramme) every four hours. When six or eight doses had been taken, persistent urticaria, a yellow sclerotic, and red urine made their appearance. Calvelli[505, No. 3] recommends the application of a 6-per-cent. solution of picric acid five to ten times daily in erysipelas. He finds it efficacious, especially in those cases in which there is much fever and delirium.

Picrotoxin.—S. W. Stevenson quotes Bókai in detail, saying that this author considers picrotoxin to be a safe respiratory and vasomotor (central) stimulant. (See end of article on Opium.)

Pilocarpine.—James F. Goodhart,[2, Jan. 11] reasoning from the value of pilocarpine as a diaphoretic in Bright's disease, was led to try it in a case of jaundice with intense itching. It has been tried, in ⅛-grain (0.02 gramme) doses, in 6 cases, and with success in all. In 2 or 3 instances, he says, it has benefited the lightning pains of locomotor ataxia. Wladislaw Witkowski[788, No. 6] also speaks of its value not only in relief of the itching, but also in the cure of hepatogenous jaundice. As the drug remains inert in the jaundice of malignant growths of the liver, he has used hypodermics of pilocarpine as a diagnostic test for establishing a diagnosis between catarrhal icterus and hepatic cancer. W. C. Peaslee[189, Oct.] treats pneumonia with pilocarpine, hot-water bags, and blankets. If much cyanosis is present, glonoin is given at the same time. Out of 29 cases he has lost only 3 patients, and they were intemperate.

Pinus Pumilio.—E. Dubois[142, Feb.15] thinks that his success in the treatment of diphtheria is due to the volatilization of the essence of pinus pumilio in the room of his patients. He has had no fatal cases in 32 patients. If tracheotomy be performed, the vaporization is all the more valuable, as it prevents some of the complications following the operation.

Pitch-Oil.—A case is reported by Beaven Rake[2, Feb.16] in which a child of 3 years drank 6 drachms (23 grammes) of pitch-oil. The chief symptoms during life were deep stupor and convulsions. The child died on the third day, a doctor not having been called. The autopsy revealed acutely-inflamed intestines and stomach.

Plumbago.—F. Semeleder, of Mexico, corresponding editor, states that *chab-ak*, in the Maya language (Yucatan, Mexico), is the name for *Plumbago scandeus* (Linnæus), a plant growing wild there. It has an epispastic action. The leaves, when crushed and applied to the skin, produce instantaneous rubefaction, and, after a few minutes, blistering. The juice of the plant destroys corns and warts.

Potassium.—Edward Anderson[104, Jan.26] recommends the use of the bitartrate of potassium in puerperal eclampsia, and in Bright's disease when the urine becomes loaded with albumen. Huchard[700, Nov.3] considers the reason why potassium iodide frequently is not tolerated to be due to the fact that the kidneys are often sluggish. His advice is to use milk or any other good diuretic in combination with the iodide. Fournier[100, Feb.19] sums up the indications and the contra-indications for the use of iodide of potassium. He thinks that those rare cases of œdema in which the iodide has a toxic action cannot be explained on the ground that the drug is impure (containing the iodate), or that the kidneys are diseased, or that the dose was too large. As an example of how the time of giving a medicine modifies its action, H. C. Harris[202, No.7] finds that 0.30 gramme (4⅔ grains) potassium iodide, administered in 15 grammes (2 drachms) water, before meals, will cure a bronchitis in four days; whereas, the same dose, administered in 60 grammes (2 ounces) after meals, has no effect on it. After an experience of twenty-five years, J. B. Johnson[196 Nov.] does not consider a combination of the iodide and chlorate of potash poisonous. Five grains (0.33 gramme) each of these salts have been given every half-hour continuously, for a week, and no deleterious results noted. In the treatment of diphtheria, tonsillitis, and stomatitis, he believes this combination to be most effective.

Primula Obconica.—Charles Oldacres[2 Sept.28] reports several cases of a rash resembling urticaria or eczema due to handling the *Primula obconica.* Only certain individuals with abnormally-sensitive skins appear to be affected by it.

Prussic Acid.—J. Geppert[114 B.15,H.4] concludes an elaborate article on prussic-acid poisoning. The results of his experiments show that in this poisoning less oxygen is used and less carbonic acid formed than is normal. The reason for this is that the presence of prussic acid deprives the tissues of the capacity to form oxygen. The poisoning consists in internal smothering or choking of the organs by excess of oxygen.

Ptomaines.—W. R. Chittick[284 June] reports a fatal case of ptomaine poisoning which occurred in the person of a girl 14 years old. Fat pork was the suspected source.

Pyridin.—In order to treat affections of the air-passages, especially asthma, 1 drachm (3.90 grammes) of pyridin is placed in an iron spoon and held over a lamp in the patient's room. When the vapors are inhaled an amelioration of the symptoms often follows.[673 Feb.] In an experience of eighteen months, J. A. Robison[760 Apr.27] has failed to see a single case of spasmodic or cardiac asthma in which it has not given relief in a greater or less degree. This drug was originally recommended by G. Sée, and should not be confused with the new drug, pyrodin.

Pyrodin—Hydracetin.—Hydracetin is acetylphenylhydrazin, and the only active part of pyrodin. As pyrodin is composed of 3 parts of sugar and 1 of hydracetin, the dose of the latter drug would be one-fourth of that given for pyrodin. As an antipyretic, Paul Guttmann[4 May 20] found in 18 severe fever cases that, in doses of .010 to .030 gramme ($\frac{1}{6}$ to $\frac{1}{2}$ grain), the temperature began to fall in a half hour, and reached the lowest point in two or three hours. As the hours for giving the medicine were chosen when naturally there would be a rise rather than a fall of temperature, the action must have been due to the drug. The temperature fell 1½° to 2° C. (2.7° to 3.6° F.), and in 1 case 3° C. (5.4° F.); but in four or five hours the temperature gradually reached the same point as before. The best results were obtained in 8 cases of acute muscular rheumatism. The same amount as above was given *per diem* in divided doses. In from half an hour to two hours the pain was relieved, remaining so for several hours, and then returned, to be again stopped by another dose. It will thus be seen that, like antipyrin, acetanilid, and salol, its action is only palliative.

In concluding the article, Guttmann finds that more than 0.1 gramme should not be given in twenty-four hours; if this be divided into two, and if an antipyretic action be desired, the second dose should be given an hour after the first. If for rheumatism or neuralgia, one dose should be taken in the morning and the other in the evening; 0.10 gramme (1½ grains) should not be given continuously for more than three days.

R. Lépine[211, Dec. 9, '88] has made some experiments with Dreschfeld's new antipyretic, phenylacetylhydrazin, which the writer abbreviates into phenacethydrazin. Not more than 3 grammes (46⅛ grains), he says, should be given in a day, and this amount can be given awhile without bad effects. In case of fever its action was favorable, in that the temperature was lowered and the general condition of the patient was ameliorated. In 2 cases of locomotor ataxia the girdle-pains were relieved better than by any of the usual remedies. Though this drug reduces both hot and cold Fehling's solution, this reaction did not take place when either the urine of the dogs or patients under observation was added to the solution. Dreschfeld has called the attention of R. Lépine[3, p. 88] to the fact that pyrodin is composed of 3 parts of sugar and 1 part of pure phenylacetylhydrazin. We think that the reduction will probably be found to be due to the sugar contained in pyrodin, and not to phenacethydrazin, as stated by Lépine. According to the researches of George Lemoine,[55, June 15 & 29] pyrodin is the best of the antipyretics. He would call particular attention to its value in tuberculosis, especially when there is a new deposit of tubercles. Here, from a dose of 0.05 gramme (¾ grain), the antipyretic action is prompt and continuous for several days. It is only after four to six days that the temperature again reaches its original height. Its action is not only favorable in lowering the temperature, but the neuralgia and the gastric troubles so often associated with this disease are benefited, the night-sweats diminished in severity, and the sleep made more tranquil. In a large dose it becomes toxic, and it is best not to give more than 0.10 to 0.15 gramme (1½ to 2⅛ grains) in one day. With 0.25 gramme (3¾ grains) there has been produced cyanosis of the face and extremities, coldness of the latter, lowering of the temperature to 35° C. (95° F.), profuse sweats, acceleration and then retardation of the pulse, and an almost complete disappearance of this and of respiration. Renvers[4, Nov. 11] admits that pyrodin possesses greater antipyretic power than any other drug, but he reports bad effects from the use of large doses, and declares that it should not be experimented with further, but should be stricken from the list of our therapeutic agents. This appears to be the general opinion of most of the German writers on the subject. Th. J. Zerner,[160, Mar.] indeed, as the results of numerous trials in various kinds of diseases, absolutely condemns the use of pyrodin as an antipyretic in enteric fever, and he warns against its use generally on account of its decided toxic properties. Not more than 0.3 gramme (4⅔ grains) should be given in twenty-four hours. It is less efficient and much less certain in action, he says, than antipyrin, antifebrin, and phenacetin, and less safe than any of them. Luigi Cantu[2, June 16] gave an account of the effects produced by pyrodin in a case which he had had under observation. The patient was a lad, aged 19, who was suffering from tetanus. Pyrodin was given to the amount of 50 centigrammes (7½ grains) a day. On the third day the urine was intensely dark red in color, and was found to contain methæmoglobin and a large quantity of urobilin, besides masses of amorphous, reddish-brown granules. The red corpuscles were discolored, and showed little tendency to form *rouleaux*, and numbered 2,500,000 per cubic millimetre. Under diet consisting largely of milk all toxic symptoms disappeared in twelve days, but the patient remained in a state of grave anæmia. The pyrodin did not lower the temperature, and had no effect on the tetanic symptoms. Cantu concludes that pyrodin is a very powerful blood poison, with a destructive action on the red corpuscles analogous to that of chlorate of potassium, pyrogallol, etc. He maintains that it has no advantage over the antipyretic and nervine remedies already known, and absolutely condemns its employment. Filehne,[20, Aug. 1] too, says that in 7 cases of poisoning by pyrodin hæmoglobinuria is produced, while in a case of less intense effect he noticed a brown-red urine, due to the presence of urobilin. James K. Crook[1, Feb.1] has a good word for it. He urges that the only toxic effects noted are hebetude, jaundice, and icteric urine, the occurrence of which is little to be feared if sufficient care is exercised in its employment. It is Crook's opinion that pyrodin may be safely given in doses of from 8 to 16 grains (0.52 to 1.03 grammes) daily to adults, and from 4 to 8 grains (0.26 to 0.52 gramme) daily to children, for several consecutive days.

Quebracho.—Edwin M. Hale[779, Oct.] calls quebracho and one of its alkaloids, aspidospermine, the digitalis of the lungs. He has used it successfully in most cases in which dyspnœa was a marked symptom. As small a dose as the $\frac{1}{100}$ to $\frac{1}{500}$ grain (0.0007 to 0.00015 gramme) of the alkaloid acts well in asthma and in spasmodic croup.

Quinine—Cinchona.—Eugen Wilbuschewicz[209, May 31] has made histological and chemical examinations of as large a number of specimens of yellow cinchona-bark as could be obtained in commerce and in private collections. Charles M. Seltzer[80, June] gives a ready method of preparing the lactate of quinine by the addition of 1 minim of lactic acid to 1 grain (0.065 gramme) of the sulphate of quinine, with enough water to make 5 minims (0.31 cubic centimetre). It is then ready for hypodermic use. H. Bocquillon-Limousin[24, Mar.24] states that there are two sulfovinates of quinine,—a neutral and a basic salt. Methods are given showing how to prepare each of these salts. Both of them are of great value for hypodermic use, especially in the colonies, where there are sudden attacks of pernicious fever which must be controlled quickly. Limousin,[14, Mar.10] moreover, considers the sulphovinate of quinine to be the best salt of quinine for hypodermic purposes for the following reasons: (1) it is neutral and very soluble in water; (2) the drug contains 72 per cent. of quinine; (3) it is quickly and entirely eliminated. P. Vigier[14, Mar.10] uses the lactate of quinine for subcutaneous injections.

Dulon[62, Apr.1] gets better effects from his quinine if he gives antipyrin with it. The dose of the quinine given can thus be reduced one-third by the addition of about half as much antipyrin. Pasquier[212, Oct.] gives a method of preparing a neutral hydrochloride of quinine, which can be used with advantage in hypodermic injections. Benermann[99, Apr. 18] has used this preparation nearly a hundred times, and he finds that there is no pain produced nor any local irritation caused by the injection. Unpleasant symptoms do not follow it in the treatment of typhoid fever, neuralgia, and rheumatism, as is so often the case when quinine is given by the mouth. F. E. Stewart[60, Dec. 29, '88] has found a little coffee, prepared with milk and sugar, to well disguise the bitterness of even a large dose of quinine. Afterward it is well to take a sip of coffee containing no quinine. Milk may also be used for the same purpose. A Russian[14, Apr. 7] correspondent writes that Krastilevsky found, in the case of a child who was not able to take quinine on account of an idiosyncrasy, that if he gave small doses of the bromide of sodium every two hours the quinine was well borne. In order to dissolve quinine for hypodermic injections, D. C. Hewson[186, Feb.] has used for the last five years the bimuriate of quinine with urea. He has never known an abscess to follow its use. James P. Parker,[1, Dec. 15, '88] however, uses the dihydrobromide of quinine for hypodermic purposes, as he thinks that even small doses of bromine will help to prevent cinchonism. S. C. Zavitziano[87, July] has used the arseniate of quinine in cases of intermittent fever in which quinine and other remedies had failed. The dose in 1 case was .070 gramme ($1\frac{1}{10}$ grains), divided into 2 equal parts, and taken several hours before the chill. George T. Welch[121, Dec., '88] deprecates the use of quinine by the laity, and then cites cases showing the physiological action of the drug. B. Frank Humphreys and others[85, Apr.] write on the uses and abuses of quinine.

I. E. Atkinson[61, Sept. 29] reports 49 cases of quinine blindness, 47 of which he has collected from the literature of the subject. The action of the drug on the eye is to produce pronounced anæmia, whereas it makes the ear hyperæmic. An abstract is given of Tomaselli's paper[12, Feb.] on "Quinine Poisoning, or Ictero-Hæmaturic Fever," which was read before the First Congress of the Italian Society of Internal Medicine. Tomaselli concludes that quinine exhibits a toxic action in certain individuals affected with malarial fever, giving rise to a hæmaturia, and, more frequently, to an ictero-hæmaturic fever. In these cases he says it is necessary to suspend the quinine and cure the malarial fever by other agents,—eucalyptus, arsenic, etc. Mostato[505, Nos. 13 to 15; 1, Mar. 30] calls attention to this disease caused by quinine, and calls it "Tomaselli's disease," after the aforesaid writer. On several occasions W. L. Schenck[121 Dec.,'88] has given to a patient of his, when pregnant, small doses of quinine, and has always had uterine contractions produced. In one of her pregnancies a living fœtus was expelled two hours and a half after the administration of a 10-grain (0.65 gramme) dose of quinine. H. C. Coe[1 Feb.16] records a case in which internal strabismus of the left eye, with slight ptosis, was produced after five days by 5-grain (0.32 gramme) doses of quinine, taken four times a day. A peculiar case of idiosyncrasy to quinine is mentioned by Edward Evans.[6 Oct.6] On three occasions a small dose gave rise to intense itching of the dorsal aspect of the middle phalanx of the right little finger, followed by a large wheal. At the same time the glans penis was similarly affected. L. G. Peters[6 Oct.6] reports a remarkable case in which the peculiar idiosyncrasy existed of an elevation of temperature (104° to 105° F.—40° to 40.55° C.) one hour after a 1-grain (0.065 gramme) dose of quinine. E. G. Hunt[6 Dec.22,'88] also reports a case in which urticaria followed the use of quinine.

Resorcin.—Rodrigues A. Guiao[513 Mar.15, Apr.1] enters into a discussion of the chemical, physiological, and therapeutical effects of resorcin. He has found it useful in the greatest variety of diseases, including mercurial stomatitis, thrush, enteritis, pertussis, skin diseases, blepharitis, acute articular rheumatism, and as an antiseptic in surgery. Albert Leblond and Baudier[24 Aug.18] have an elaborate and interesting paper on resorcin in the treatment of diphtheria, tuberculosis, pertussis, and soft chancre. They consider it an ideal antiseptic, as it has no action on healthy tissue, is not toxic even in large doses, and, when continued for a long while, is quickly absorbed, penetrates deeply into diseased tissues, and possesses the well-known properties of carbolic acid without its corresponding disadvantages. In the treatment of diphtheria, the first thing to be avoided is all open wounds, and then a drug like resorcin should be used which will be able to neutralize the poison on the surface of the false membrane, penetrate through it to the mucous membrane, be absorbed by the lymphatics, and follow the poison in its entrance into the system. A solution prepared by dissolving 1 part of resorcin in 9 of glycerin is applied to the diseased parts as often as is necessary. The authors have not had a single death when the case was seen in time and the resorcin properly applied, except in the laryngeal form or where there was a sudden involvement of a large area of the mucous membrane of the respiratory tract. J. C. Erwin[85, Nov.] believes he has found in resorcin a remedy of the greatest value in the treatment of malarial troubles, and one that possesses a great many of the virtues of quinine without any of its objectionable qualities. He has used it in more than 100 cases, the dose being 5 grains (0.32 gramme) three times a day.

H. Amon[34, Aug.6] reports a case of poisoning with *thioresorcin*, resulting from its continued application to leg-ulcers. The symptoms were an itching and acute exanthema, resembling measles, complicated with œdema of the eyelid and some elevation of temperature. According to Merck, thioresorcin is a sulphur substitution-compound of resorcin; it is used instead of iodoform. Amon noticed the peculiar fact that the amber-yellow crystals change into those of a pale color on the wound. This change is especially noticed in the crystals nearest the surface, and Amon suspects that the residue is flowers of sulphur. The therapeutic action of thioresorcin was found to be favorable in many cases.

Rhubarb.—Litten[1, Mar.16] mentions the appearance of a rash on a man after taking small doses of rhubarb. The rash consisted of large maculæ, together with severe pemphigus, and was ushered in with a pronounced chill.

Rhus Aromaticus.—Eloy[672, July; 28, Oct.] has used 20- to 25- drop doses of the juice or tincture of the leaves in incontinence of urine. The results obtained were favorable.

Rhus Toxicodendron.—John Aulde[80, Oct.] found that ½-drop doses of a tincture of the poison sumach are of use in rheumatic affections and varicose veins. The tincture is to be prepared according to the pharmacopœial method of making tinctures from green herbs. It contains principles not supposed to be present in the fluid extract prepared from the dried drug. For hæmorrhoids, varicose veins, or rheumatism, cascara cordial may be administered with benefit at the same time.

Roburite.—While roburite, the new explosive, has not been used, as far as we know, in medicine, the following fatal case of poisoning may be of interest: A man was employed by the manufacturers to clean out a chimney connected with the mixing-room. He was found insensible, was taken to his home, and never recovered consciousness. Nothing of interest was found at the autopsy.

The chimney is supposed to have contained dinitrobenzine.[6 July 13] A writer[6 Aug.31,'87] also cites a number of articles which show the poisonous properties of this compound. James Ross[90 May] previously reported 6 cases of roburite poisoning, none of them, however, ending fatally. The men were healthy up to the time that the roburite began to be used in the mines for blasting purposes. The symptoms complained of had many points in common. The first symptom usually noticed is a peculiar smarting of the face and eyes; next comes a feeling of languor and drowsiness, and there may be shooting pains in various parts of the body. The patients were extremely anæmic, and had a peculiar bright-blue tint of their lips. From the urinary deposits it is probable that, like other compounds of nitrobenzole, roburite causes much destruction of hæmoglobin. In the hands there were the signs of peripheral neuritis. In the first case the patella reflex was absent, and the patient had lost all sexual desire. In several others, however, the patella reflex was exaggerated. Ross considers the symptoms of these cases to closely resemble those of poisoning by bisulphide of carbon, already reported by him.

Rubidium Ammonium Bromide.—Laufenauer,[116 Aug.] reasoning from the fact that lithium bromide is more powerful than the ammonium bromide, the sodium salt more so than the lithium, and the potassium salt more powerful than the sodium bromide, was led to believe that the stronger the electro-positive element of this group was, and the higher its atomic weight, the greater its power in the treatment of disease. As rubidium and cæsium are more strongly electro-positive and have a higher atomic weight than potassium, a double salt, the rubidium ammonium bromide was prepared, and, in a series of experiments, was found to be more satisfactory than the other bromides. The dose is about the same as for potassium bromide. Experiments are also to be made with the cæsium salt. The ammonium bromide of rubidium was tried experimentally by Laufenauer in epilepsy. It was not found superior to other combinations of bromine, while it possesses the disadvantage of being very costly. An editorial[80 Oct.] hopes that it will be found that the bromide of rubidium can be used in epilepsy when the potassium salt, for any reason, has to be stopped.

Rubus Chamæmorus.—V. Bouchoueff[586 No.24; 67 Oct.15] has been studying the action of the berries, leaves, and flowers of the yellow raspberry as a diuretic. In only 1 case was there notable diuresis, but favorable results were obtained in the treatment of nervous disorders of the heart.

Saccharin.—Constantin Paul[3, July 21] reports some experiments made by Marfan, which show that the antiseptic power of saccharin is lessened in an alkaline medium and increases in strength as the alkali is diminished. Paul draws the conclusions that, as an antiseptic, pure saccharin should be used, but that in those cases in which it is used for its sweetening purposes it should be combined with an equal quantity of the bicarbonate of soda. In this manner as much as 5 grammes (77 grains) can be given to diabetic patients, and there will be no complaint of retarded digestion and pains in the digestive tract. Two parts of saccharin, rendered soluble by 3 parts of the bicarbonate of soda, forms an admirable tooth-wash. "G. P."[6, May 4] has found a solution of 30 grains (2 grammes) of saccharin to the pint of water contain vegetations in about three weeks' time. This observation is recorded as opposed to the claim that saccharin is a powerful antiseptic and germicide. A discussion has been carried on in France[24, p.110,146,157] regarding the value of saccharin. Dujardin-Beaumetz writes that, from a therapeutic point of view, saccharin is a valuable acquisition as a substance preventing fermentation and in the hygienic treatment of diabetes. But, for general use, he objects to it, not on the ground of its being toxic, but because it is not a food in the true sense of the word, and because the consumer is deceived by its purchase. For further information on the replacement of sugar by saccharin for domestic purposes, the reader is referred to articles by Worms,[152, Dec.13,'88] Pavy,[24, Dec.2,'88] Const. Fahlberg,[2, Dec.8,'88] and H. Macnaughton Jones.[6, Feb.2] Fournier[3, Apr.10] has treated 10 cases of aphthæ with saccharin. In 8 of these the flakes disappeared within twenty-four to thirty-six hours. One gramme (15½ grains) of saccharin is dissolved in 50 grammes (1 ounce 5 drachms) of alcohol, and then a teaspoonful of this solution is added to a half-cup of water. The mouth is then to be washed out thoroughly five times a day with the above preparation. A stronger solution than this is too irritant, as has been shown by cases in which it was tried. Armin Petschek and Th. J. Zerner[169, June] state that saccharin is 280 times sweeter than ordinary sugar. Saccharin itself is a good antiseptic; the sodium salt should be used in those cases in which we desire a substitute for sugar. The sodium salt was administered to 49 cases in doses of 0.10 to 10.0 grammes (1½ grains to 2½ drachms), and, on account of its intense sweet taste, the drug was given in capsules. The cases in which saccharin was used included 10 cases of pulmonary phthisis, 4 of intestinal catarrh, 4 of acute articular rheumatism, 4 of cystitis, 2 of scarlatina, and a great variety of other diseases. The best results were secured in the remittent fever of phthisis, in the remission period of typhoid fever, and in intestinal catarrhs. A favorable result was not obtained in the treatment of cystitis, as one would have expected from the praise which has been bestowed upon the drug for this purpose. In 2 cases the otorrhœa of otitis media suppurativa was stopped, and further trials are to be made in this direction. Various uses as an antiseptic are also given.

Salicylic Acid—Salicylates.—Lauriston E. Shaw[6 Jan. 11] adds 2 other cases to the 3 already reported by him illustrating the occurrence of hæmorrhage from the use of salicylic acid. In both of these cases the bleeding was from the gums, and recovery took place. There was no hæmorrhagic diathesis. The writer thinks that 6 per cent. of all patients treated with sodium salicylate and salicin have bleeding, though it is oftener only epistaxis. The hæmorrhage seems to come on from several hours to days after well-marked symptoms of salicylism have been produced. An editorial[80 Mar.] states that hæmorrhage from the use of salicylic acid must be extremely rare in this country. It is suggested that the doses given here may not be so large as those given in Guy's Hospital. Letzinski[6 Feb.] has found the salicylate of cresol useful in acute rheumatism, and also believes that it would be found of service in the prodromic period of cholera on account of its antiseptic properties. As the taste of the salicylate of soda is disagreeable, Paul Chéron[17 July] recommends the method of putting a pinch of salt on the tongue before the medicine be taken. By this means he says the taste will be completely disguised. Jaccoud,[61 May] according to a Paris correspondent, does not think, from clinical experience, that the sulphate of quinine should be given in febrile tuberculosis, but that the salicylate of sodium should be used in a maximum dose of 2 grammes (½ drachm) in twenty-four hours. Pullman[4 July 1] states that 75 grains (4.85 grammes) of salicylate of soda produced in himself vomiting, diarrhœa, hæmorrhage from the nose, and profound collapse.

H. Lindenborn,[4, June 24] has been experimenting with the sodium dithiosalicylate II, discovered by the chemist Baum. While only a few cases of rheumatism have been treated, he draws the conclusions that the action is more powerful and the dose (0.2 gramme —3 grains—two or three times daily) smaller than that of sodium salicylate. No bad after-effects on heart or alimentary canal, and none of the general symptoms of salicylism were noted. O. Liebreich[116, July] discusses its antiseptic action and chemical composition. He thinks that we may have found a powerful and useful medicament. Paul Chéron,[17, July 9] gives some experiments made by Chopin on the effect of the elimination of salicylic acid. He considers that in health even small amounts increase the quantity of urea, uric acid, and phosphoric acid, and that in nephritis the quantity of albumen is increased by its use. Lauriston E. Shaw,[6, Feb. 9] thinks that the artificially-prepared sodium salicylate is more efficacious than natural salicin, although more likely to produce delirium and hæmorrhages. H. C. Harris[202, Apr. 10] has found that 16 grains (1 gramme) of salicylic acid are soluble in an ounce (31 grammes) of sweet spirits of nitre. This solution will remain clear even though water be added. Such a mixture is useful in the treatment of malarial fever without the administration of quinine. John J. Berry,[138, June 15] calls attention to the value of salicylate of soda in trifacial neuralgia; 20 grains (1.30 grammes) should be given every hour or two until the pain is relieved. Migraine is often relieved by the administration of a small dose of morphine, followed by one or two large doses of the sodium salicylate. Huber[59, Sept. 21] has found it to be a diuretic, but he restricts its use for this purpose to simple pleuritic effusions. The quantity of urine in 25 cases of rheumatism was found to be increased some 500 or 700 grammes (16 or 22 ounces) from the administration of 10-grain (0.65 gramme) doses every three hours. More than 45 grains (2.92 grammes) should not be given. G. A. Gibson and R. W. Felkin[15, Jan.] report a case of myosis following the use of 20-grain (1.30 grammes) doses of sodium salicylate every two hours. The reaction of the pupils to light was absolutely lost and the vision was imperfect. Other symptoms of salicylism were also present. The writers call attention to the fact that mydriasis has been noted, but that they have never before known of a reported case of contracted pupils from the use of salicylic acid.

Salix Nigra.—F. T. Paine[202, Jan. 10] has found salix nigra to be a remarkable sexual sedative. While the drug will suppress the sexual excitement in masturbation, spermatorrhœa, and nymphomania, it will not cure the harm already done by sexual excesses.

Salol.—As a dressing for burns we do not consider salol sufficiently used. The pain is certainly lessened, the dressing is as clean and healing, and its action as prompt as in any other treatment. H. Mabbett[647, Mar.] believes it to be wise to combine bismuth subnitrate with salol in the treatment of bowel troubles. An editorial[60, Mar. 22] says that Loewenthal, judging from its action on dogs, thinks that the remedy will be useful in cholera. W. L. Carr[104, Sept. 28] has used salol in 35 cases of gastro-intestinal derangement. The best results were obtained in the first stage of acute gastro-enteritis caused by the improper administration of food or too sudden change of temperature. The farther down in the intestine the trouble, the less certain appeared to be its action. Lombard[760, Sept. 28] is quoted as saying that the action of salol depends on the quantity of the pancreatic juice, as the remedy does not act when the pancreatic duct is tied. It is suggested that this may be the reason why such diversity of opinion has prevailed in regard to the benefit derived from its use in intestinal disorders. Corner,[61, June 8] uses the powdered drug as an antiseptic dressing for wounds after the parts have been sterilized with a 2½-per-cent. solution of carbolic acid. In 1 case, that of a compound fracture of the finger, the dressing remained on twenty-one days, and during this time there was neither pain nor elevation of temperature. It has also been recommended as a tooth-wash on account of its antiseptic action and its leaving a refreshing taste and pleasant odor behind.[829, Sept. 16]

Salt of Sorrell.—Robert Park[218, Sept.] mentions the case of a man who, by accident, took ½ ounce (15.55 grammes) of salt of sorrell, with the result of experiencing excruciating pain in the stomach, followed by all the symptoms of a violent gastro-intestinal inflammation. (See Oxalic Acid.)

Senna.—G. H. Dunn[186, June] gives the following formula for a cheap and efficient laxative that can be administered in the liquid form: One-half ounce of senna-leaves are placed in a quart of water, and boiled fifteen minutes in a covered dish. The liquid is then strained, and ¼ ounce of dry sugar is added; ½ pound (250 grammes) each of figs and prunes are cut up, added to the liquid, and the whole is boiled until the fruit gets thoroughly soft. Dose: 1 teaspoonful after each meal. A. W. MacFarlane[6 July 27] prepares an infusion of senna-pods by allowing 6 or 12 pods to remain in a wineglassful of water six or eight hours. Such a preparation is free from the odor and taste so characteristic of senna, and is most useful and certain in its action as a laxative. It was given in a single instance to a nursing woman, the child not being purged.

Sesquisulphide of Hydrogen.—A. A. da Silva[67 Sept.15] thinks that the sesquisulphide of hydrogen will be much used in the future. It has, he writes, certain advantages over the ordinary forms of sulphur. It can be used in the form of an ointment, in the proportion of 1 part to 10 parts of vaseline.

Sodium Sulphate—Salines.—A. Löwy,[41 Apr.11] from 10 experiments with sodium sulphate, confirms v. Mering's and Zuntz's results, which go to show that there is an increased tissue interchange produced by its administration. He believes that the salines increase the decomposition of the fats by increasing intestinal action.

Soja, or Sooja.—Egasse[67 Nov.30,'88] says that *sooja*, or *soja*, is a name given in Japan to a liquid obtained by the fermentation of the grains of a plant belonging to *Leguminosæ papilionaceæ.* The celebrated traveler, Koempfer, first called attention to it, having been struck by the frequent use made of it in Japan. It is made into cheese and farina, and is considered a valuable food in convalescence from grave diseases and in the incipient stages of phthisis. He[505 No.50; 84 Aug.3] also calls attention to the fact that soja contains a large proportion of proteids and a considerable amount of fluid fat, with only a trifling amount of carbohydrates. It is especially valuable in diabetes, as has been already proved by practical tests in the hospitals of Algiers.

Solanum Caroliniense.—J. L. Napier[186 Aug.] introduces to the notice of physicians the horse-nettle as a remedy worthy of trial in epilepsy. For this disease the berries are steeped in whisky and used by the negroes. As far as Napier's experience goes, a tincture saturated with the active principle has been very effective in combating convulsive disorders. Teaspoonful doses are given at first, and then the dose is increased until vertigo is produced, when it should be lessened until the symptoms subside.

Somnal.—According to Radlauer,[6 Nov.16] somnal is ethylated chloral urethan. In ½-drachm doses (2 grammes) sleep is produced by it in about half an hour, and lasts from six to eight hours. No unpleasant results were noted, and the author believes that we have in somnal a drug which possesses the advantages of chloral without any of its disadvantages.

Sozoiodol.—Sozoiodol is di-iodo-phenol-sulphonic acid, and contains 55 per cent. of iodine, 20 per cent. of phenol, and 7 per cent. of sulphur.[6, May 4] The salts[214, May] are odorless and vary in their solubility, the zinc salt dissolving easily and the mercury compound with difficulty. The potassium salt mixed with 2 parts of powdered talc can be used as a substitute for iodoform. The credit of discovering this preparation is due to a Californian, but the foreign matter which was contained in it made it too irritant for use until a purer preparation was made in Germany.[9, Feb 16] S. Schwarz[87, July] prefers the sozoiodol preparations to iodoform, as he has found them equally efficacious and at the same time free from odor. The most interesting part of his paper is a history of a diabetic patient. In this case various means had been tried, and the man continued to grow worse, until all the classic symptoms of this disease were present. Twelve litres of urine a day were voided, containing 4.65 per cent. of glucose. Two grammes (31 grains) daily of sodium sozoiodol were given, with no restrictions as to diet. In eight days the patient could sleep an hour, the amount of urine had diminished, and sugar was only present to the amount of 3.2 per cent. The dose, after being increased from 2 to 2.5 grammes (31 to 38 grains), had to be lowered on account of irritation of the stomach. In two months not a trace of sugar was to be found in the urine, and all his symptoms had improved. In quite an extended use in rhinitis hypertrophica, ozæna, acute coryza, and in inflammations of mucous membranes generally, Hermann Suchannek's[214, May 30] results agree with those of Fritsche (see last ANNUAL); and Nitschmann,[116, Jan.] instead of using insufflations as recommended by Fritsche and Suchannek, has obtained favorable results with a 5- to 7-per-cent. solution applied directly to the naso-pharynx, either in the form of a douche or by painting with a camels'-hair brush. He says that sozoiodol cannot be praised too highly as a topical application in catarrh of the cervix (Emmet's ectropium). Here the sodium preparation is used, and, by being blown directly on the cervix and a dry tampon placed over it, the sozoiodol remains in direct contact with the affected part.

Sparteine.—Kurloff[826, p.67] thinks sparteine is only of use in those cases in which we have lack of compensation without any organic lesion, when the physician does not wish to resort to the more powerful remedies. Lewaschew[5, Aug.] considers it desirable to have as many drugs at our command as possible for the treatment of cardiac troubles. He believes that we have in sparteine a drug weaker than digitalis, adonis, or strophanthus, but one nevertheless capable of promptly re-inforcing and controlling a weak and irritable heart. Only in 7 cases out of 22 was there any obvious therapeutic action, and these were patients in which the failure of compensation might have been restored by means of appropriate hygienic conditions. In cases of long standing, or where there are considerable changes, sparteine is regarded by him as inactive. The dose to be given is 1½ to 4¼ grains (0.10 to 0.26 gramme) three or four times a day. In cardiac cases there follows an increase in the quantity of the urine. L. Anton Gluzinski[826, Mar.14] also thinks that sparteine is useful in the first stages of heart failure. As its action is much quicker than that of digitalis, it can be used where a prompt action is desired. Small doses of 0.02 to 0.05 gramme (⅓ to ¾ grain) are recommended. E. T. Bruen[112, Jan.] found sparteine to be a diuretic of considerable power. A sensation of numbness, and in 1 case paresis amounting to paralysis, was observed. There is no loss of appetite, but, differing from Pawinski, Bruen thinks that there is a cumulative action.

Stramonium.—Pedicini[518, Mar.] records 5 cases of poisoning with stramonium in one family. The mother made a decoction from the leaves and took it for a cough, giving it also to her children. The oldest was 3 years and the youngest was a suckling. The first signs of poisoning appeared after seven or eight minutes, and when Pedicini arrived there was dilation of the pupil and delirium. The following symptoms were observed: 1. Coldness of the extremities. 2. Hallucinations. 3. Later, loss of consciousness and stupor. 4. Dysphagia, anuria, slowing of the heart. 5. Coma and contraction of the pupils. The patients recovered under the use of caffeine, morphine, black coffee, and camphor.

Strophanthus—Strophanthine.—Ed. Egasse[67, Jan.30] has given us a most interesting account of the introduction and uses of strophanthus, and the different varieties of the active principles, or the so-called strophanthines. His paper is chiefly composed of a review of the literature of the subject, which has already appeared in the ANNUAL, but should be read, as it gives a clear and good idea of the different views held in regard to this drug. R. Demme$^{1143}_{\text{Ja.26}}$ thinks that in children more care is needed in using strophanthus than with digitalis. Slight sickness at the stomach and cold sweating are indications to stop its use. Diuresis was increased during three to four days, the pulse made slower and stronger, breathing freer, and œdema less. In 5 cases of mitral insufficiency the diuretic action disappeared after three to four days, and compensation could only be reached by digitalis and strophanthus combined. It acted well in chronic nephritis, but not at all in the acute disease. A favorable action was noted in pleural exudate, bronchial asthma, and in whooping-cough, in which, from dilated heart, dyspnœa and œdema arose. The effects of the drug were, however, unfavorable in phthisis. Its action depends on the increase of blood-pressure and its influence upon the respiratory centre. It completes the action of digitalis in combined administration. A cumulative effect was not noticed. Steinach,$^{104}_{\text{July 27}}$ has shown that strophanthus seeds contain a body which, when placed on the conjunctiva, produces anæsthesia in twenty-five to thirty minutes, lasting two to twelve hours. There are no marked signs of irritation, though in animals there may be produced cloudiness of the cornea. Troquart$^{188}_{\text{Apr. 21}}$ says that in a feeble heart with asystole, in which digitalis produced no effect, the extract of strophanthus acted well for five days, especially as regards diuresis; but then the urine began again to diminish, the œdema re-appeared with the asystole, and the drug ceased to act. Moreau$^{188}_{\text{Apr. 21}}$ gave the tincture of strophanthus to an old case of heart trouble suffering from dyspnœa, œdema of the legs, and an intermittent pulse. The patient had taken the usual cardiac remedies in vain. Five days later the patient showed mental trouble, the left arm became numb, and there was trouble in speech. Three days later the right arm became numb. The writer does not wish to attribute these troubles to strophanthus, but to find out if others have ever noticed a similar condition. Pope$^{6}_{\text{Apr. 15}}$ used strophanthus in the form of a tincture in doses of 5 minims (0.35 gramme) in 14 cases of valvular disease, 1 of tobacco heart, and 1 of renal dropsy. It caused vomiting in 5 cases. It was of most service in mitral regurgitation. In 1 case of tricuspid insufficiency the patient died unrelieved. It failed or had to be discontinued in one-half of the cases. The writer thinks that it should be used when digitalis fails or a rapid action is needed. An editorial$^{2}_{\text{Mar.16}}$ calls attention to the fact that a sufficient time has now elapsed since the introduction of the strophanthus for us to compare its action with that of the other cardiac stimulants. The great advantage of strophanthus is that it acts more promptly than digitalis and has no cumulative action. It causes, however, disturbances in the alimentary tract, and when given hypodermically may give rise to local irritation. Hermann Haas$^{326}_{\text{p.[illegible]}}$ used Fraser's tincture of strophanthus in doses of from 10 to 50 drops. No dangerous or cumulative action appeared and the appetite improved. The pulse became slower, and the drug succeeded as a diuretic where digitalis had failed. Five hours after administration the apex beat changes; it becomes ten to twenty beats slower per minute, is quieter, and the impulse slower. Where there was no hypertrophy the apex beat could soon be found only with difficulty or not at all. He considers that it diminishes the activity of the heart-muscle, as well as that of the muscular layer of the arteries. He thinks it doubtful if it increases blood-pressure. Hare$^{9}_{\text{Feb.23}}$ records its value in cardiac diseases in children where digitalis has failed.

Dujardin-Beaumetz$^{17}_{\text{Jan.17}}$; $^{9}_{\text{Feb.23}}$ regards strophanthus as a tonic of great value in cardiac weakness, giving no bad renal effects unless acute nephritis exists. In renal incompetence it is better than digitalis. It causes diarrhœa by prolonged use. He thinks it doubtful if it can produce nephritis. Germain Sée$^{67}_{\text{Jan.20}}$ employed strophanthine in doses of $\frac{1}{5}$ to $\frac{2}{5}$ milligramme ($\frac{3}{1000}$ to $\frac{6}{1000}$ grain) in all heart diseases, and always obtained identical results. The results were especially good in mitral lesions and in retraction of the valves, less so in aortic insufficiency. Cardiac action was increased. The pulse when depressed, small, and feeble rose again. Its irregularities and inequalities disappeared, but not constantly. In no case was there relief of dyspnœa nor diuresis. In dilatation of the heart and in hypertrophy due to general arterio-sclerosis there was strengthening of the pulse. In angina pectoris strophanthine aggravated the condition. No bad effects were noticed on the stomach. Sometimes there was slight vertigo. In nephritis it may produce dangerous effects. Strophanthine is an excellent heart tonic, but never causes diuresis. In general, he prefers alkaloids to crude drugs. Sée thinks that strophanthine is of but little value in cardiac diseases. Bucquoy,[35 Jan. 24] used strophanthus with success in 3 cases of angina pectoris, but in only 1 of 3 cases of exophthalmic goitre did it act well. In mitral lesions it increases the energy of the cardiac contractions. In retraction of the valves it often acts magically in relieving dyspnœa, oppression, and œdema. He sometimes saw it produce diarrhœa. Bucquoy considers this drug to possess diuretic properties. Catillon[14 Dec. 22,'88] obtained from strophanthus a nitrogenous non-toxic product, which acted as a diuretic on rabbits and on himself. J. Y. Dale[9 Dec. 22,'88] saw the tincture of strophanthus act well in 5-drop doses in a case of exophthalmic goitre with a tumultuous and rapid heart. It also acted well in a weak heart in typhoid fever. Dujardin-Beaumetz[10 Dec. 4,'88] says that, from a therapeutic point of view, we do not yet possess any principle which can be utilized under the name of strophanthine to the exclusion of all others. In the midst of all the strophanthines prepared, there is extreme embarrassment, since all have variable composition and toxic effect. Laborde[10 Dec. 4,'88] claims that there is only one strophanthine, namely, the one isolated by Arnaud.

Sulphonal.—J. W. Irwin[224 July 20] saw staggering gait, almost complete blindness, and aphasia follow its use. It failed in a case of arterio-sclerosis. In a case of typhoid fever with furious delirium, 30 grains (2 grammes) repeated every two hours till 120 grains (7.8 grammes) were taken produced no apparent effect. A. G. Browning[59 July 20] gave 80 grains (5.2 grammes) in two nights, the first 40 (2.6 grammes) in 10-grain (0.65 gramme) doses every hour, and produced tremor, delirium, and then a sleep so deep that the patient could not be easily aroused. He was dull and sleepy for three days. In 3 other cases there were bad secondary symptoms. C. W. Kavanaugh[9 July 6] reports 3 cases of its successful use in morphinists. W. R. Watson[166 July] finds it a hypnotic and, to some extent, analgesic. C. H. Shivers[19 June 8] failed to get good results with it in a single case, each of dipsomania, gastro-enteritis, and beginning phthisis. French Mullen[206 June] commends it highly in insanity.

I. S. Titus,[139 June] in 3 cases of insanity, not only obtained sleep, but also a rapid cure. H. Macnaughton Jones[22 May 23] believes that sulphonal is not only unreliable in mania, but that it may be even dangerous. He has used it for a long period in headache with no bad effects. Thirty grains (2 grammes) will dissolve in 1 ounce of brandy and 2 ounces (62 grammes) of boiling water. It should not be taken in compressed tablets. Matthes[341 No.17; 80 May] concludes it to be a useful hypnotic, but not always certain. It has no action on the vital organs. Secondary symptoms are infrequent and unimportant. The dose must vary with the patient. One gramme (15½ grains) is usually enough. The drug is to be given at least an hour before bed-time. René Verhoogen[219 Apr.11] saw it used by Leube with success, even for long periods, in 15-grain (0.97 gramme) doses, per rectum, in Bright's disease and heart disease. R. E. Power[2 May 18] found that 40 grains (2.60 grammes) gave from four to six hours' painless sleep in a case of cancer of rectum. It also acted well in cerebral meningitis. Kisch[4 No.7] had no results from 2-gramme (31 grains) doses in cardiac asthma. Three grammes (46 grains) in an old neurasthenic caused misery, fatigue, and slowing of pulse to 38 per minute. Joachim[116 May] reports a case of mitral insufficiency, with bronchial catarrh, in which serious secondary symptoms, without sleep, appeared. He approves its use in heart disease with dyspnœa. G. W. Rachel[150 Nov.,'88] saw 1½ grammes (23 grains) produce fourteen hours' sleep, followed by dizziness. Zerner[84 Nov.10,'88] noted unpleasant effects in 10 to 12 per cent. of all cases. Böttrich[116 Mar.; 61 Apr.3] relieved night-sweats by doses of ¼ to ½ gramme (4 to 8 grains). Samuel Garnier[361 Jan.,Mar.; 99 Apr.18] thinks it very valuable in insanity. Vomiting and diarrhœa, which sometimes appear, forbid its continuance. It sometimes acts as a diuretic and produces vertigo. It may possibly be contra-indicated in congestive insanity. Divided doses given in 1 case were without effect. F. Fisher[75 Apr.1] saw ataxia and hebetude follow its use in a case of morphia habit. Patient denied trouble in walking.

J. P. Crozer Griffith,[80 May] while fully admitting the value of sulphonal, and using it constantly in his practice, yet calls attention to the fact that it is unreliable, and very apt to produce unpleasant effects. He reviews the literature of the subject to some extent, and cites 18 cases from his own experience in which these effects were witnessed. As a result of the combined study of these and the cases reported by others, he concludes his paper as follows:—

"The chief disadvantages of sulphonal are: 1. Its hypnotic action usually develops very slowly. 2. This action is very liable to be prolonged throughout a greater or lesser part of the following day. 3. It is difficult to determine the dose which may be given with effect and with comfort in each individual case, and this dose may vary at different times in the same case. 4. The drug is liable to produce unpleasant secondary effects, which may even replace the primary hypnotic action. Chief among these are mental excitement, nausea, vomiting, dizziness, headache, languor, exhaustion, depression, and a staggering gait. These symptoms may appear either after large or after quite small doses. 5. It very often fails to exert any hypnotic action, either in any dose whatever or in any amount which can be given with comfort to the patient."

A. Mairet[14, Mar. 31] experimented with the drug in doses of from 2 to 5 grammes (30⅚ to 77⅙ grains), and concludes that, though it is hypnotic and powerful, it is accompanied by bad after-effects. Secondary effects appear on the second or third day, and are due to an accumulation in the economy. Its action lasts two nights after use. He recommends one large dose, followed by diminishing doses. C. M. Rexford[59, Mar. 30] saw 10 grains (0.65 gramme) cause sleep lasting a day in a case of pneumonia. A. Mairet[14, Mar. 27] never had results with less than 2 grammes (30⅚ grains). According to this writer it cannot be long employed. Theo. L. Hatch[105, Mar. 15] recommends it as a nerve tonic in broken health in 5- to 10- grain (0.32 to 0.64 gramme) doses. It is useful in typhoid fever with subsultus, muttering delirium, and lack of sleep. Ed. Egasse[67, Mar. 15] fully reviews the literature of sulphonal. Doolittle[1, Dec. 22, '88] has had good success with 2-gramme (30⅚ grains) doses. Three grammes (46⅓ grains) caused languor, hebetude, and loss of appetite, lasting a day. He noticed that patients, before accustomed to chloral, later preferred sulphonal. Funaioli and Raimondi[686, Sept., Nov., '88; 67, Mar. 15] have had success with it in acute mania, imbecility, melancholia, dementia, epilepsy, and acute alcoholism. Sachs[59, Oct., '88] thinks that it loses its effect on continuous use. It has no effect on the circulation, and may be used in cardiac diseases and probably in fevers; causes headache only in doses over 4 grammes (61¾ grains). Ott[88, No. 40, '88] thinks that susceptibility to it varies, and that small doses should be given at commencement. Hunter McGuire[137, Mar.] finds it very useful in alcoholism. Sixty grains (3.90 grammes) produced sleep lasting a day, with no bad effects. Ruscheweyh[75, No. 21, '88; 9, Mar. 9] gives sulphonal in a pint of hot milk or bouillon. If sleep came on promptly there was no following lassitude. He had excellent results in a morphinist, and in two syphilitics with pain from calomel injections. Elon N. Carpenter[59, Mar. 3] reports its successful use in insanity. Out of several hundred doses he detected but little effect on cutaneous or renal secretions, no constipation, but some nausea and vomiting in epilepsy. Percy Smith[166, Apr.] used it with good results in 14 cases of insanity, the sleep usually lasting six hours. Rabbas[4, p. 330, '89; 235, Mar.] used sulphonal successfully in mental diseases, and finds that 2 to 3 grammes (30⅘ to 46⅓ grains) act better than amyl hydrate or paraldehyde, and that sleep lasts longer than with chloral. A. Cramer[235, Mar.] found it acted well in various mental diseases in doses of from 1 to 3 grammes (15½ to 46⅓ grains). It has no effect on the diastasic action of saliva or on artificial, gastric, or pancreatic digestion. H. W. Boone[235, Mar.] used it with success in 17 cases of opium habit, and in 1 case of exhaustion from prolonged mental exertion. In 2 cases of bronchitic asthma it induced sleep without relieving the cough. E. Heinrich Kisch[4, Feb. 18] had good results in 15 out of 26 cases. He recommends it in nervous insomnia, and would not throw out of consideration the mental effects of a new remedy. It is also thought good[214, Feb. 16] in pure sleeplessness and in neuralgia. It was useless in a case of agrypnia. It sometimes caused mental excitement and ataxia.

E. B. Landis[112, Feb.] used it successfully in insanity and cancer of the breast. Two doses of 30 grains (2 grammes) each failed in a morphinist. Algeri[112, Feb.] has used it with the happiest results in 15 cases. Constantin Paul[3, Jan. 16] recommends it in nervous insomnia, and in that due to pain, in doses of from 1 to 4 grammes (15½ to 61¾ grains). Engelmann[650, Nov. 1, '89; 80, Jan.] saw a scarlet eruption produced in a case of chronic metritis. Thirty grains (2 grammes) were given without sleep being produced. Kronfeld and Löwenthal[8, July 10] used it in 40 cases, with success in 79 per cent. Sleep came on in from 1½ to 2 hours. Conolly Norman[16, Jan.] found it useful in various insanities, recurrent attacks even seeming to be shortened; refusal to take food and masturbation were overcome by it. William H. Flint[1, Dec. 15, '89] concludes from 30 cases that it is a safe and reliable hypnotic. It continues to act without increase of dose. Good in debility, mental perturbation, opium habit, it is powerless in insomnia from dyspnœa in cardiac and Bright's disease, and is not an analgesic. The average time of beginning sleep was one hour and duration six hours. Matthes[319, Oct. 6, '89; 80, Dec.] thinks it unreliable in insomnia from neuralgia or cough. Seventy-five grains (4.90 grammes) do not affect the pulse-curve. Julius Schwalbe,[100, Oct.] from an experience of 50 cases, recommends it in nervous insomnia in 15- to 30- grain (0.97 to 2 grammes) doses, and finds it uncertain in organic troubles, in febrile affections, and in weak heart. It affects neither temperature, pulse, nor respiration. J. Mason[2, Dec. 8] obtained natural sleep in a case of insomnia by 20-grain (1.30 grammes) doses, twice weekly, for a long time.

Charles Macdowell[2, Oct. 13] regards it as useless, even in 25-grain (1.62 grammes) doses, in gastric ulcer, fibrous or acute rheumatism, pleurisy, or painful menstruation. He finds it in no sense a "pain-killer;" 15 grains (0.97 gramme) with 8 grains (0.52 gramme) of antipyrin will give a quiet night in fibrous rheumatism. Geo. C. Kingsbury[2, Oct. 13] thinks that one of the great advantages of sulphonal in the treatment of mania is the fact that it can be given to the patient, without his knowledge, in tea or coffee. He calls attention to the fact that, if too small a dose be given, there may be produced a restlessness equal to that caused by the withdrawal of morphine from a confirmed opium-eater. C. W. Hogarth,[6, Oct. 12] in a study of about 30 cases, observed in 3 dilatation of pupil and sluggishness to light and accommodation. On awakening, all complained of lassitude, and 2 patients could scarcely lift their hands. With codeia he finds it useful after labor, where there is sleeplessness and much after-pain. A. Mosse[3, Aug.] considers it wise, in order to avoid any unpleasant symptoms, to give 0.20 gramme ($3\frac{1}{10}$ grains) at a dose; 3 or 4 of such tablets, if taken in the evening before the usual bed-time, will generally suffice. He[14, Sept. 15] considers it best not to stop the drug at once, but to use decreasing doses. Knoblauch[57, Oct.] has used sulphonal in 20 insane patients; 10 patients had melancholia, 3 mania, and 7 miscellaneous forms of insanity. He thinks that from the continued use of this drug the hallucinations are increased, and that sulphonal will not long continue to be used as a hypnotic in the treatment of diseases of the mind. Where there is insomnia, with a high degree of physical debility, C. M. Hay[5, July] considers sulphonal to be contra-indicated. A Berlin correspondent[22, May] reports the case of a man who took 3 tablespoonfuls of sulphonal on the 5th of January, the sleep produced lasting, with but slight interruptions, until the afternoon of the 9th. Moutard-Martin[3, Apr. 3] has been obliged to take sulphonal on several occasions; he finds that sleep does not occur for a long time after the ingestion of the medicine, and that headache and lassitude are present the next day. William F. Shick[242 Jan.] finds it does not affect irritability of motor or sensory nerves, nor muscle-curve. It depresses reflex activity mainly through Setschenow's centre. Sometimes it exalts reflex activity. It is a narcotic, accelerates the pulse, while the arterial tension falls and then rises. Respiration is depressed, and is not affected by section of vagus. Grover Burnett[1 Mar. 2] regards it as useful in psychosis without depressive states, less so in melancholia. In a melancholic with arterio-sclerosis it produced nausea, cyanosis; pulse 60, weak and compressible; respiration 16 and laborious; semi-comatose; muscular inco-ordination. The patient remained demented for six days. It is seemingly cumulative in its action. Jos. M. Loebl[118 Jan. 30] saw deafness, headache, vertigo, sick stomach, feeling of heat and cold, cool skin, and a pulse of 55 follow the administration of 1 gramme (15½ grains). Two doses were given and sleep was not produced. Huchard[8 p. 31, 111] recommends it only in nervous insomnia; this writer once saw sleep produced by sulphonal, which lasted nearly two days; has seen lassitude, vertigo, and drunken sway follow awaking. He does not think it superior to chloral.

Paul Rehm[4 No. 16] reports a case in which 18 grains (1.16 grammes) did well for three days; then caused fatigue, depression, constipation, anorexia, physical and mental restlessness, fear, vertigo, hallucinations; finally, collapse, face pale, pupils small, speech hardly audible, pulse weak (over 100), ischuria, hyperæsthesia, double sight, muscular contraction, inability to move. In two weeks the patient could walk only with difficulty. A woman persisted in its use to relieve habitual insomnia. There resulted vertigo, gastric symptoms, paralysis, and psychical and cardiac disorders. A woman, after a dose of 2 grammes (31 grains), was semi-somnolent for four days.[26 Aug.] Bornemann[41 Nov. 26, '89; 235 Mar.] gave 60 grains (3.90 grammes) to a morphinist, and in four hours 30 grains (2 grammes) more. Sleep did not follow, but mental depression and ataxia lasting six days were produced. R. R. Petitt[9 Aug. 10] reports a case of death caused by the use of 30 grains (2 grammes) of sulphonal. His patient, a woman aged 28, had become insane from worry over the result of a slander suit, and suffered from an attack of melancholia with hysterical manifestations. In order that sleep might be obtained she was given at different times chloral, cannabis indica, potassium bromide, and paraldehyde (40 minims—2.66 grammes) with but little success. On the day of the administration of the sulphonal she had been given no medicine. At night 15 grains (0.97 gramme) of sulphonal were given, and, as an hour and a quarter afterward she was still wild and wakeful, she was given 15 more grains (0.97 gramme). After the last dose she soon fell asleep and slept quietly for twelve hours. At this time and during the next twelve hours she could swallow, and by the application of energetic stimulation was able to talk rationally. When let alone she immediately fell asleep. The pulse was 95, respiration but slightly accelerated, and the pupils normal. Eighteen hours after taking the last dose her pupils began to contract and her temperature rose to 102° F. (38.80° C.). When forty hours had elapsed cyanosis began to increase, and she died from failure of respiration. Several hours before death her pulse was good. In the treatment there was used the $\frac{1}{100}$ grain (0.0007 gramme) of atropine, about $\frac{1}{12}$ grain (0.0054 gramme) of strychnine, the faradic current, aromatic spirits of ammonia, whisky, and, at the end, artificial respiration. Flagellations were likewise used, and none of the medicines seemed to have had any effect except the atropine. No autopsy is recorded, but there is supposed to have been no organic lesion. Schotten[116, Dec.,'88] gave 7 grammes (108 grains) in three days to a case of paraplegia from myelitis, sleep coming on the third night, followed by lassitude, somnolence, falling of eyelids, hanging head, indistinct speech, trouble in moving tongue, headache, bitter taste, anorexia, and, on the fourth day, a rash like that in measles, which lasted for two weeks. With the outbreak of the rash the general condition improved.

Sulphur.—Luton[17, Jan.19] considers sublimed sulphur to be the best remedy for mercurial salivation. E. R. Squibb[9, Mar.2] declares that the burning of sulphur is of but little value as a disinfectant unless there be moisture present. His advice to burn sulphur in a pan placed in water is given not only on account of the safety, but also because the heat produced by the burning sulphur will vaporize the water. Shoemaker[760, May 30] has used the sulphide of arsenic, both internally and externally, in the treatment of various forms of troublesome skin diseases. Alfred B. Garrod[6, Apr.6] gives an account of the usefulness of sulphur in disorders of the alimentary canal and liver, rheumatoid arthritis, chronic muscular rheumatism, and skin diseases. The sulphur is administered in the form of a lozenge, composed of 5 grains (0.32 gramme) of the milk of sulphur and 1 grain (0.06 gramme) of cream of tartar. It may be continued for a long while without any complaint from the patient. One of these lozenges is to be taken at night. As sulphur is a natural constituent of many of the chief organs (?) of the human body, *à priori* one would naturally suppose that it would often be beneficial; and clinical experience bears this out. One of the most important advantages of the administration of the drug in this manner is its laxative action on the bowels without the unpleasant symptoms which so often attend the continued employment of an aperient. J. Emerson Reynolds[756 Aug.] thinks that a good disinfectant can be prepared by acting on camphor with sulphur-dioxide gas. A large quantity of the gas is absorbed, and is liberated on exposing the preparation to the air.

Squills.—Sirot[24 Sept.15] does not wish the diuretic action of squills to be forgotten. He claims for this drug the following advantages: The diuresis commences on the second or third day, and is abundant. In one case as much as 9 litres (9 quarts) of urine were voided in twenty-four hours. The heart becomes better. There is no cumulative action; so it can be employed for a long while. Finally, there is no necessity for increasing the dose.

Tansy.—W. A. Belt[59 Sept.28] reports poisonous symptoms arising in a woman through the taking of slightly over a drachm (4 grammes) of oil of tansy, with the object of procuring abortion. A half-ounce (15.50 grammes) of oil of tansy, taken with suicidal intent, is reported by S. B. Witherington[74 Sept.] to have resulted in an hour in coma, with contracted pupils, slow respiration, and weak pulse. Morphia and atropia, along with stimulants, were given, and the woman recovered.

Tatuleth — Crozophoria Tinctoria. — J. Hornsy Casson, of Persia,[2 Nov.9] reports that 6 persons who accidentally ate of this herb died.

Tereben.—George E. DeWitt[284 May] has had good results with tereben not only in the treatment of bronchitis, but also in irritation of the bladder, prostatitis, puerperal fever, and anal fistula. Sebastian J. Wimmer,[1 Feb.9] considers it wise to administer tereben in capsules. It is a sedative as well as a stimulant, and is almost equal to the oil of eucalyptus as an expectorant. Dyspnœa is relieved by its use. If there is any renal trouble the drug is contra-indicated.

Thallin.—G. L. Simmons[147 Sept.] reports that in Europe thallin is now chiefly used in the treatment of gonorrhœa. In acute cases a 1-per-cent. solution is injected; in chronic, a 5-per-cent. solution, mixed with olive-oil.

Thermifugine.—Methyl trihydroxyguinoline sodium carbonate has been found by Demme[90 Mar.] to be a good antipyretic, as it reduces temperature, slows the pulse, and increases blood-pressure.

Thiol.—F. Buzzi[1144 H.67] agrees with Reeps that we have in thiol a remedy possessing the same therapeutic value as the well-known salts of ichthyol. It is used in the treatment of seborrhœa, acne vulgaris, eczema, etc. There are two preparations on the market: 1. Thiolum liquidum, an aqueous solution of a specific gravity of 1080, containing about 40 per cent. of thiol, and not possessing a disagreeable odor. This preparation is used for the same purpose and in the same manner as ichthyol. 2. Thiolum siccum, a carefully-prepared dry powder, soluble in water. This preparation can be given internally, and can be employed as a dusting-powder in skin diseases, burns, erysipelas, etc. For use, 1 part of it should be mixed with from 5 to 10 parts of starch, oxide of zinc, or other inert matter.

Thioresorcin.—E. B. Landis[514 Feb.] thinks that in thioresorcin we have found a good substitute for iodoform. While he has not used it in a major operation, he cites 5 cases of minor surgery to show its value. (See Resorcin.)

Thymol.—Frederick P. Henry[99 Apr.4] has used thymol, prepared with castile-soap, in 2- to 3- grain (0.13 to 0.19 gramme) doses every six hours. This treatment was employed in acute and chronic intestinal disorders. In typhoid fever the temperature falls, the stools become less frequent, cerebral symptoms diminish, and a moist and clear tongue appears. Testi[64 Apr.] has used thymol in 150 cases of typhoid fever. He says that the drug lowers the temperature, diminishes the tympanites, hinders the formation of offensive matter in the fæces, reduces the excretion of urea, and increases the blood-pressure without injury to the heart.

Turpentine.—Ernst Feibes[697 May] relates a case of erythema following the internal administration of the oil of turpentine. The author considers it to be due to the vasomotor centres being strongly irritated.

Tyrotoxicon.—J. N. Martin,[99 Nov. 21] Ann Arbor, Mich., records a case of poisoning with tyrotoxicon. Two hours after drinking the affected milk the woman was seized with dizziness, violent headache, and convulsive movements of the limbs. Free emesis relieved her.

Ulexine.—The active principle of *Ulex Europæus* has been found by A. W. Gerrard to be ulexine. E. H. Fenwick considers it a powerful diuretic. In a case of stricture $\frac{1}{10}$ grain (0.006 gramme) produced suppression of urine, vomiting, and fever. Pinet believes, from his experiments, that the drug possesses properties antidotal to strychnine.[26 Aug.]

Uralium.—Gustavo Poppi[505 Feb. 6; 2 Mar. 16] enthusiastically praises uralium, a combination of urethan and chloral hydrate, as superior in hypnotic powers to any other drug. He seems to think that it is useful in the insomnia of hysterical origin or of cardiac trouble.

Vaseline.—J. Roussel[735 Mar. 1] condemns the use of vaseline as a vehicle for hypodermic injections because it inhibits the efficacy of the drug administered, and is dangerous from the fact that it may be converted into hydrocyanic acid in the nascent state, and thus, entering the circulation, may produce grave accidents. The great objection to the general use of vaseline is that water cannot be incorporated with it as it can with lanoline.[276 June 6] V. Krebs has found that 2 drops of castor-oil to the gramme (15½ grains) of vaseline will permit the introduction of an aqueous solution.

Veratrum Viride.—G. Meillère[164 Mar. 28] writes of the chemical composition of the veratrines α, β, and γ. Ch. Liégeois[33 July] considers it a vascular cardiac tonic, an antithermic, and a nervine. In idiopathic, and especially in functional palpitations, great success has been achieved by its use. Authors are quoted showing its value in pneumonia and in typhoid fever. The most interesting part of the paper is the reference to the treatment of Basedow's disease, as recommended by Sée. He states that Guyot has cured a patient suffering with that disease for three years. In the discussion which followed the reading of the paper at the *Société de Thérapeutique*, Huchard[8 June 19] also declared that he had successfully treated a case of exophthalmic goitre by means of 20 to 25 drops a day of the tincture. Carl Semelroth[176 June] thinks that veratrum viride is of value in the treatment of rheumatism on account of its controlling the heart's action and producing diuresis. P. H. Brothers[647 Oct.] gave a boy 6 years old 6 drops of tincture of veratrum viride. In half an hour the patient violently tried to vomit; the action of the salivary and sudoriferous glands was stimulated, the extremities became cold, the pulse 90, and the temperature 99° F. (37.22° C.). In two hours afterward his pulse was 60. He recovered rapidly under a treatment of blistering the epigastrium, rubbing the extremities, and the internal administration of carbonate of ammonia. Lewis Pedigo[81 July] describes a case of poisoning produced in a child by eating the root of the American hellebore. When seen the patient was in a stupor, with cold extremities, and feeble pulse and respiration. Amyl nitrite by inhalation gave most satisfactory results.

Viburnum Prunifolium.—Wm. C. Wood[139 June] highly recommends the use of drop doses of the fluid extract in cases of singultus, and also, in very small doses, in threatened abortion. In the latter case, if too large doses be given, the uterine contractions appear to be increased.

Virga Latifolia.—Both Mascarel and L. Roché[35 June 18] have used virga latifolia as a diuretic; the former gives the powder mixed with the yelk of an egg and the latter follows the plan of Duché, by giving large quantities of a very weak infusion.

Water-Gas.—D. A. Cleaveland[99 July 11] reports the resuscitation of a woman almost moribund through the inhalation of water-gas by the transfusion of 10 ounces of milk.

Wild Parsnip.—G. S. Phillips[99 July 4] says that the symptoms of poisoning by wild parsnip are flushing of the face, mental dullness, convulsions, coma, dilated pupils, shallow respiration, weak pulse, dry and swollen tongue. His treatment is with emetics, enemata, opium, and prolonged etherization.

Wormwood.—A quarter of a pint of infusion of wormwood is reported by Bernard Robinson[6 Apr. 18] to have caused, in a man, vertigo, trembling of the limbs, pain in the abdomen, desire to micturate, and pain in the head of the penis.

Xanthoxylum Senegalense.—Giacosa and Soave[477 Apr.; 24 Aug. 4] found in xanthoxylum Senegalense four alkaloids, one of which, artarine, appears to be analogous to berberine, and another to cubebine.

EXPERIMENTAL THERAPEUTICS.

BY HOBART A. HARE, M.D.,

PHILADELPHIA.

Absinthe Liqueur.—At a meeting of the Academy of Medicine of France, held on the 10th of September, 1889, Cadéac and Albin Meunier$^{3}_{\text{Oct. 2}}$; $^{16}_{\text{Nov.}}$ submitted a memoir on a physiological study of absinthe liqueur. The Academy, thereupon, appointed a commission, composed of Messrs. Ollivier and Laborde, to examine and report upon this memoir. At the meeting of the Academy, held on the 1st of October, the commission presented their report. Cadéac and Meunier's researches seem to those gentlemen to lead to the conclusion that the essence of absinthe liqueur does not possess the serious toxic properties generally ascribed to absinthe. The essence is the essential principle of the liqueur; but it seems that it usually contains other ingredients, especially the essence of anise-seed, coriander, fenugreek, etc. Admitting the existence of what has been termed absinthism, the authors contend that the proper designation for that affection should be anisism. If the anise-seed be eliminated from the liqueur, or reduced to a very small proportion of the liquid, the absinthe liqueur will then be found non-toxic, and will but impart to those who imbibe it the "amiable quality of hilarious excitement!" Laborde, of the commissioners, has himself experimented with the essence of absinthe. He administered, subcutaneously, to a guinea-pig weighing 400 grammes (1 pound), a gramme (15 minims) of essence of absinthe, and to a second guinea-pig, of about similar weight and age, a gramme of essence of anise-seed. Within barely five minutes the first animal was in violent convulsions, having the characteristics of an epileptic attack, and died asphyxiated in about an hour. The second animal squatted in a corner, became drowsy, although it was easily aroused, but exhibited the want of co-ordination in movement which is observed in drunkenness; no convulsive signs were observed. If the guinea-pig succumbs to the dose of anise-seed it is not until twenty-four or forty-eight hours have elapsed. Cadéac and Meunier speak of essence of hyssop—an ingredient of absinthe liqueur—as a powerful agent in producing epilepsy; but this is, according to Dr. Laborde, a very exaggerated statement. One to 2 cubic centimetres injected into a guinea-pig produced increased vivacity, impulsive movements, bilateral cephalic tremblings, and contraction of the paws; ultimately the animal became somnolent—a state which seems to be produced by all the ingredients of absinthe liqueurs except absinthe itself. The reporters conclude (1) that the absinthe is, of all the essences in the liqueurs of that name, the most toxic and dangerous, and it alone produces the epilepsy of the absinthe drinkers; (2) that it is an error, scientifically and practically, to give the titles "beneficent" and "corrective" to absinthe essences; (3) that absinthe liqueurs, and all liqueurs of the sort, said to be aperient, and, above all, the non-purified and adulterated alcohols, constitute poisons the most prejudicial to health; (4) that absinthism and alcoholism constitute the two great enemies to public health and the improvement of the human race.

Acetophone or Methyl-phenyl-ketone.—Kamenski[15 Nov.] has made a research on the physiological effects of acetophone or methyl-phenyl-ketone on animals in Sushchinski's laboratory. He finds that it lowers the sensibility and interferes with reflex action. Large and medium doses produce a moderate amount of sleep. It quickens the heart's action, probably by stimulating the accelerator nervous apparatus. It increases the irritability of the respiratory centre, except in large doses, which may arrest respiration altogether. It lowers the blood-pressure by its action on the vaso-motor centre and by weakening the heart's action. Medium and large doses lower the irritability of the brain, and even small doses have a similar effect upon the cord. The oxygenation of the blood takes place more rapidly under the influence of acetophone than without it. The fall of temperature is due to increased giving off of heat to the surrounding atmosphere.

Alcohol.—In order to study the action produced by an occasional (dietetic) use of alcohol on the nitrogenous metabolism and the assimilation of proteids and fats, Mohilansky,[90 Nov.] house-physician to Manasseïn's clinic, has undertaken careful experiments on 15 healthy men (mostly medical students), aged from 18 to 28.

Some of the subjects were total abstainers, some were occasional, and others habitual alcohol drinkers. The administration of alcohol varied according to the subject's habit, the daily dose oscillating between 60 and 140 cubic centimetres (2 to 5 ounces) of absolute alcohol, or from four small wine-glassfuls (rumka) to half a bottle of a 40- or 42-per-cent. vodka (aquavit). To put it otherwise, the beverage was given in a dose sufficient to produce slight intoxication (high spirits and talkativeness, etc.). The principal results of Mohilansky's important and very instructive researches may be given as follows: 1. In people habituated to alcohol, when taken in moderate quantities, it distinctly improves the appetite, and gives rise to a marked increase in the assimilation of the nitrogenous constituents of food, the average surplus amounting to 2.09 per cent., the maximal to 4.22 (*e.g.*, a patient who had been assimilating 93.10 per cent. of nitrogen, without alcohol, proved to be assimilating 96.07 per cent. nitrogen when alcohol was added to his dietary). 2. In habitual total abstainers, however, the assimilation sinks somewhat (0.28 or 0.33 per cent.). 3. The increased assimilation in the former category must be attributed to a more complete absorption and intensified gastric digestion, which result from a prolonged retention of food in the stomach on one side, and from increased digestive power and secretion of the gastric juice (Claude Bernard, Kretschy, Richet, Lever, Petit and Semerie, Gluzinski) on the other. 4. The nitrogenous metabolism or disintegration of proteids almost invariably (in 13 out of 15 cases) decreases; the average fall being 8.73 per cent., the maximal 19.42, the minimal 0.14 (*e.g.*, in a patient in whom the metamorphosis on non-alcoholic days had amounted to 80.11 per cent.; on alcoholic days it fell to 63.78). The decrease is frequently observed even when small doses are taken; it is invariable in the case of moderate or medium quantities. There does not, however, exist any strict parallelism between the dose and the amount of the inhibition of the metabolism. 5. The decrease remains still perceptible for some time, even after discontinuing alcohol. 6. It is probably dependent mainly upon alcohol inhibiting the systematic oxidation processes (V. A. Manasseïn, Schmiedeberg, Boecker), and further upon its changing the blood-pressure, dilating blood-vessels, retarding the circulation, and depressing the bodily temperature. 7. Alcohol also diminishes somewhat the assimilation of fats (to judge from the fact that the amount of fatty acids eliminated with fæces is augmented). 8. It does not possess any diuretic action; on the contrary, it rather tends to inhibit the elimination of water by the kidney, which, after all, should be expected beforehand, since alcohol dilates cutaneous blood-vessels and depresses the arterial tension; that is, favors cutaneous perspiration and interferes with the renal action. (As a matter of fact, in 2 patients the daily amount of urine remained unaltered; in 5 it increased on an average 7 per cent.; while in 8 it fell 12 per cent.) 9. Such organs as are not habituated to the use of alcohol show a much stronger reaction from the substance than habituated ones.

Amido-benzoic Acid Group.—With a few exceptions, it may be stated that this class of substances is without any effect upon the animal organism. Whether they are given to animals by the stomach or intra-venously there still remains the normal condition of the system unchanged in its functional activity. *Ortho-amido-benzoic Acid.*—The administration of 2 grammes (30 grains) of this substance for every 8 kilos (17 pounds) of dogs' weight was entirely without effect. On the circulation the results are almost equally barren. After the injection of 1 gramme (15 grains) for every 6 kilos (13 pounds) by the jugular vein no symptoms appear for about nine minutes, when a decided slowing of the pulse occurs. As this occurs both in the curarized and non-curarized animal, it must depend on some direct effect of the drug. Further experimentation has shown that the inhibitory nerves are stimulated centrically and peripherally, since under these circumstances section of these nerves causes slight increase in rate not equal to that occurring in the normal dog,—a fact which points to peripheral inhibitory stimulation. This action would seem proved since atropine failed to produce an increase in rate if ortho-amido-benzoic acid was given first. *Meta-amido-benzoic Acid.*—This compound also has little influence on the animal economy. Careful manometrical studies of the circulatory apparatus, after doses of the compound by the jugular vein, show results identical with those already given, and even so much as 1 gramme (15 grains) to every 5 kilos (11 pounds) of the dog's weight produces no influence. In one experiment, in which the entire mass of the injection (1 gramme—15 grains—in 40 centimetres—1¼ fluidounces

—of aq.) was sent *en masse* into the heart, there was for a moment a fall of blood-pressure of about 20 millimetres of mercury, which lasted for only 10 seconds, and was dependent on the rapidity of the injection. *Para-amido-benzoic Acid.*—When para-amido-benzoic acid is given by the stomach to a dog, so that for each 7 kilos (15 pounds) of the animal 500 milligrammes (8 grains) of the drug are used, nothing occurs, and this is likewise true when such a large dose as 2 grammes (30 grains) to every 5 kilos (11 pounds) are employed. In one case slight vomiting came on, but as a very small amount of liquid was ejected none of the drug was lost, and it is probable that the efforts at vomiting was largely volitional, and due to the irritation of the fauces by the œsophageal tube used when giving the dose. No fall in the normal bodily temperature occurred, as was proved by the insertion of a rectal thermometer before and after dosage. On the circulation, as studied by the mercurial manometer, this compound gives results of no more importance than those already stated. The pulse-rate and arterial pressure undergo no changes when doses of from 500 milligrammes (8 grains) to 1 gramme (15 grains) to every 8 kilos (17 pounds) of the dog's weight are given by the jugular vein, in the space of 10 seconds, in 30 centimetres (1 fluidounce) of sodium-carbonate solution. (Gibbs and Hare[759 Oct.]).

Anilides (*Formanilide*, *Methylformanilide*, *Methylacetanilide*). —Binet,[197 Apr., May] working in the laboratory of Prevost, has carried out a careful and lengthy research on these substances. The conclusions which he reaches are as follow: Formanilide, methylformanilide, and methylacetanilide present for consideration two points of view; namely, those in which they possess properties in common, and those in which they differ. Considering first their common properties, he finds that they possess a local action on the tissues, more particularly on the muscles. On the frog, when given hypodermically, they produce loss of motor power and finally paralysis of the peripheral nerves, with depression of the nerve-centres; the respirations are suspended, the heart is simply slowed, unless the drug be injected directly into the heart, when it is paralyzed. In warm-blooded animals the blood is altered, becoming black and asphyxiated by the reduction of oxyhæmoglobin. When the poisoning is prolonged the blood becomes coarse and brown-looking, as is characteristic of the formation of methæmoglobin. That this change does occur is proved by the spectroscope. The number and form of the red corpuscles are not decreased or changed. These changes in the blood and respiration are the causes of death in warm-blooded animals; there is always a marked fall of temperature, as of the heart-force, arterial pressure, and excitability of the vagus nerves. When the anilines are taken, para-amido-phenol can be found resulting from the oxidation of the aniline in the urine by means of the indo-phenol reaction. Very frequently the urine under these circumstances will reduce a cupro-potassic solution. The special properties of these bodies are centred around the central nervous system. Formanilide and methylformanilide produce an inertia and torpor, with shivering, salivation, and jerkings of the muscles, as an advanced form of the poisoning. On the other hand, methylacetanilide rapidly provokes crises of clonic, epileptiform convulsions with salivation. The attacks are alternated with intervals of quiet, during which the animal is restless and nibbles the objects about him. The movements of the limbs are incessant, and collapse with cyanosis terminates the scene if the dose be a lethal one. The toxicity of these bodies is governed by their molecular weights, for formanilide is the least toxic, methylformanilide is next, and methylacetanilide is the most dangerous. With these three bodies one observes the fact that the system becomes rapidly accustomed to them, for each succeeding dose is not followed by such severe symptoms. The introduction of these bodies into therapeutics is hardly to be thought of, owing to their poisonous properties.

Aniline and Toluidine.—Wertheimer and Meyer,[3] have published the results of a series of experiments, which show that the chloride of aniline and of toluidine injected into the veins of a dog in the proportion of 30 centigrammes (5 grains) to the kilo (2 pounds) causes within a few minutes a transformation of hæmoglobin into methæmoglobin, as shown by the spectroscope. In regard to the quantity of carbonic acid in the blood, they found that this drug produces a slight decrease in it, and that the quantity of oxygen was very notably decreased. Thus, when aniline was given, the percentage of oxygen was only 7.3 instead of 23.1, which is the normal percentage. When metatoluidine was employed, 6.8 per cent. instead of 23.1 per cent. of oxygen was found,—a decrease which is considerably more than that caused by paratoluidine, which is 13.5 instead of 23.1 per cent. of oxygen; and, again, in orthotoluidine the quantity of oxygen amounted to 15.1 instead of 23.1 per cent. In regard to the influence of these substances upon bodily temperature, it was found that aniline and metatoluidine produced far greater loss of bodily heat than did paratoluidine or orthotoluidine. Thus, the fall in the first instance was found to be as great as 7° to 9° C. (12° to 16° F.) after five or six hours, whereas, with the two latter compounds, the fall amounted to only 2° or 3° C. (3° to 5½° F.). Jaffe and Hilger,[265 Nov. 3] in another series of experiments, found a still greater fall of temperature after the use of metacetotoluidine than with paratoluidine or orthoacetotoluidine; indeed, the two latter did not influence the temperature at all.

Anthropotoxine.—Recent experiments,[6 Apr. 6] conducted by capable observers, have shown that the poisonous influence possessed by impure atmosphere in rooms where large numbers of persons have been gathered does not depend solely upon carbonic acid but to a poisonous substance, to which Du Bois-Reymond has given the name heading this article. French experimenters have since proved that this poison comes from the lungs, and this fact has been most strikingly demonstrated by purifying the air exhaled by animals by means of sulphuric acid, which absorbs the lung poisons, but leaves the carbonic acid quite unchanged. If the air, before undergoing its subjection to the acid, is breathed by an animal, the animal rapidly becomes comatose and oppressed, but the same air after its purification is without injurious effect. These researches show that the treatment of air by alkalies does not fit it for the use of living creatures, as has heretofore been supposed, since such a process only destroys the carbonic acid.

Antipyrin.—In addition to the vast amount of material which has appeared during the last few years concerning not only clinical but the physiological aspect of this drug, Messrs. Crolas and Hugounenq[211 Mar. 3] have reported a series of experiments carried out for the purpose of determining the relation of antipyrin to the number of red blood-corpuscles, the quantity of the urea, and the actual amount of phosphoric acid. They have also endeavored to discover the toxic dose of antipyrin. The conclusions reached are, that a dog in perfect health may take from 45 to 150 grains (3 to 10 grammes) of the drug a day without sensibly diminishing the number of the blood-corpuscles or presenting any spectroscopic changes in the blood, such, for example, as the presence of methæmoglobulin. In regard to the influence of the drug upon the secretion of urine they find that the quantity is diminished in twenty-four hours, but their experiments upon the amount of urea, which is eliminated under its use, are not thoroughly concurrent or in accord with logical reasoning. Indeed, they would seem to prove that the urea is increased rather than diminished when antipyrin is given. With phosphoric acid they found but little change in its amount. In regard to the toxic power of the drug they have found that from 75 to 150 grains (5 to 10 grammes) may be given for fifty-two days at a time without producing any symptoms of poisoning. Even as much as 300 grains (20 grammes), a quantity corresponding to 1800 grains (116 grammes) for man, produces no very marked effects, according to their statements. We cannot help thinking that these experiments have some fallacy underlying them, particularly in these latter points. It would seem hardly possible that a dog could receive 300 grains, or a man receive 1800 grains, without causing death. Either there is some mistake in the quantity given or else it must have been dissolved very slowly, or, perhaps, gotten rid of by means of vomiting and purging. One of the most interesting contributions, to our knowledge, of the physiological action of antipyrin has been made by Batten and Bokenham,$\frac{2}{\text{June 1}}$ whose researches were chiefly directed to the determination of the manner in which the drug caused the relief of pain in headache and kindred diseases. As the true pathology of these disorders is uncertain, the ground upon which they had to work was of course an unstable one, but after much thought they reached the conclusion that as those states were accompanied by an alteration in the general or local vascular system, as, for example, irregular contractions of the blood-vessels, they turned their attention to this point with the object of discovering whether the relief of pain was due to a direct action upon the nerves themselves or the blood-vessels. The results of their studies seem to prove that the main action of the drug is upon the nervous system, not in its peripheral portions, but rather upon the spinal cord and brain. An interesting attempt was also made by these observers to discover the tracts of the cord which are especially affected by the drug, but, as might be expected in the present state of our knowledge, the results have not been as successful as could be hoped for. They point out, however, the rather interesting fact that the symptoms produced by antipyrin bear a very strong resemblance to those of lateral sclerosis, and they therefore think that the action of the drug may be localized in the lateral columns of the spinal cord. Thus, they found in guinea-pigs and cats spastic rigidity of the hind limbs as a very marked symptom. It was also noted that this condition came on more frequently when the limbs were voluntarily moved than at other times,—a state pointing toward involvement of the lateral columns. The myostatic irritability was also found to be very marked, the slightest touch being sufficient to effect violent muscular contractions or to cause clonic spasms of the whole body. In another experiment a phenomenon similar to that of ankle-clonus was observed. Batten and Bokenham, in considering this question of localizing the action of drugs on the different parts of the tracts of the spinal cord, have at least called attention to a field of research in which as yet, as they state, little has been done, and which gives great promise of good results. The great difficulty which always exists in the way of the successful carrying out of such experiments lies in the fact that the action of the drug is always more or less transient, and the result in the cells invariably functional rather than organic. It would seem doubtful whether we shall ever be able to examine cells microscopically, even immediately after death, and be able to state with exactitude whether the changes noted are caused by the drug previously administered or by the loss of vitality and blood-supply. This, of course, does not hold in regard to those poisons which produce wide-spread changes in all parts of the body, but seems an almost insurmountable barrier to the study of drugs which are used as remedies in disease. Notwithstanding these facts, Tschisch has found by using certain drugs that vacuolation of the cells of certain tracts of the nervous system can be readily defined. In a similar manner sclerosis of the postero-lateral columns of the spinal cord has been found in cases of chronic ergot poisoning, due to the continued ingestion of rye-bread which has been contaminated by ergot. It seems to us, however, that these statements simply support the view already given, that at the present time our knowledge only permits us to separate the changes produced by poisonings, and not those changes produced by the administration of ordinary drugs in medicinal doses.

Areca-nut.—This nut, as is well known, is chewed very largely by the people of Asia, who for many years have employed it for the purpose of increasing salivary secretion. Recently it has been brought forward as a vermifuge, and, in consequence, pharmacologists have endeavored to obtain from it an active principle in order that it might be employed more readily in every-day medicine. Its principal constituents would appear to be a crystalline fat and red amorphous tannic acid. Some time ago, however, Bombelow[744, v.16, p.886] announced that he had separated from the nut by means of ether a volatile liquid alkaloid which he called arekaine. More recently, Jahns[744, Feb. 2] reports that he has separated from the nut three alkaloids by precipitation of the acidulated watery extract with iodide of potash, sulphuric acid, and suitable decomposition of the precipitate. The most important of these alkaloids he has named arecoline, and describes it as a colorless, oily liquid having a strong alkaline reaction, soluble in water, alcohol, ether, and chloroform at 220° C. (428° F.). It readily forms salts with the acids, which are mostly crystalline, and is hygroscopic in nearly all its combinations save that of the hydrobromide, which is stable, and does not absorb moisture. The physiological studies so far made upon it have been too imperfect to give us a general knowledge of its action upon the animal body, but have shown that it is distinctly poisonous, and that it is upon its presence that the nut depends for its anthelmintic power. In this respect, as well as in its chemical and physiological properties, arecoline seems closely allied with pelletierine, the alkaloid of pomegranate-root. In regard to the second alkaloid, arekaine, Jahns states that it forms stable, colorless crystals, readily soluble in water and dilute alcohol, less soluble in strong alcohol or in ether, chloroform, and benzol. An aqueous solution has a faintly saline taste and is neutral in reaction. Arekaine combines with acids to form crystalline salts having an acid reaction and being soluble in water. It is apparently lacking in physiological activity. The third alkaloid was obtained in such small quantity that no physiological studies could be made concerning it.

Astringents.—Heinz, of Breslau,[20, May] has studied this subject quite thoroughly, and, as our knowledge of their effects is not as complete as it might be, his results may be of interest. Using corrosive sublimate, he found that its minimum contracting strength is 0.005 per cent., while that of nitrate of silver, acetate of lead, and zinc sulphate are 0.05 per cent. The relative inherent power of producing vascular contraction is found in the arrangement of the drugs in the following order, the most active coming first: Nitrate of silver, acetate of lead, sulphate of zinc, corrosive sublimate, cupric sulphate, perchloride of iron, tannic acid, and alum. The value of these drugs upon inflammation is so well known that Heinz went still further and produced inflammation in the mesentery of the frog. He found that when these solutions were applied to the inflamed area, the leucocytes, although they accumulated around the inflamed blood-vessel walls, did not undergo diapedesis, as in the ordinary state. When inflammation was produced before the drugs were applied they at once stopped the process of transudation when applied. That this was not due to contraction of the vascular walls is proved by the fact that stronger solutions (tannic acid, 1 per cent.; alum, 2½ per cent.) of these substances which produced vascular dilatation nevertheless prevented the migration of the corpuscles. If very strong solutions are employed they inflame the parts, but ultimately are sure to allay the irritation they themselves have produced.

Atropine.—From studies carried out by Rummo[3 Oct.18] on man and animals, with medicines that paralyze the inhibitory apparatus of the heart, such as atropine, daturine, hyoscyamine and duboisine, and those which excite those nerves, as muscarine and pilocarpine, the following conclusions may be drawn in regard to atropine: Atropine increases the rapidity of the contractions of the heart-muscle by depressing the peripheral ends of the vagus nerves. In very minute doses by the mouth, 0.00025 gramme ($\frac{1}{260}$ grain) to 0.0003 gramme ($\frac{1}{200}$ grain), it stimulates very slightly indeed the peripheral ends of those nerves. Those very small doses do not affect the accelerator nerves or the vasomotor system. When given in the dose of 0.0002 gramme ($\frac{1}{320}$ grain) to 0.00025 gramme ($\frac{1}{260}$ grain) subcutaneously, there is at first a slowing, then a quickening of the heart's action; but, if the dose is 0.001 gramme ($\frac{1}{64}$ grain), the pulse becomes very slow. Moderate doses of the drug cause at first an increased arterial pressure, with prolongation of diastole, but the continued use of large doses lowers pressure very greatly. Rummo makes the curious assertion that muscarine is without effect on atropinized animals. These results are most of them entirely in accord with previous investigations. The therapeutic deductions are that atropine cannot, to any extent, strengthen the action of the heart, and a moderate dose even produces a contrary effect. When such results are desired adonidine and convallaria are to be preferred. Atropine produces good effects, and calms the sensation of pain in cardiac disease when the mechanical action of the heart remains energetic. Particularly useful is it in the angina pectoris accompanying aortic lesions. Rummo believes that atropine is particularly useful when the vagus nerves are irritable, with slow pulse-beat as a result of their excited state. This is particularly true when the entire nerve is involved in those cardiac diseases which present at their commencement a slow pulse, and which often terminate in a degeneration of the myocardium.

Bismuth.—In last year's issue of the ANNUAL I called attention to the experiments which had been carried out by Dalché and Villejean$^{67}_{\text{Nov.30,'88}}$ upon the action of bismuth when administered to animals for any great length of time. It was impossible to include in that article the conclusions which these two investigators arrived at in the final portions of their paper, but I am now able to do so. They draw attention to the fact that the lesions of the buccal mucous membrane, which are closely allied to those of stomatitis, are after all the most prominent symptoms of the action of the drug, and that, following this condition, the changes which take place in the intestinal tract are next most frequently observed. The distinction which is to be drawn between a stomatitis resulting from the prolonged use of bismuth, and that which is commonly seen after continued doses of mercury, consists in a lesser degree of ptyalism. While the color of the spot usually becomes black if caused by bismuth, it seldom becomes so dark in hue under the influence of mercury. The changes in the vascular system, which are caused by bismuth in chronic poisoning, consist in the dilatation of the blood-vessels, with consequent relaxation and congestion of the part.

Bitters in Gastric Affections.—It has hitherto been the fashion to prescribe gentian, quassia, and other bitters in a somewhat slipshod fashion "to improve the digestion" in nearly all cases in which dyspepsia is a prominent symptom. Recent researches have, however, tended to throw doubt on the power of "bitters" to produce any good effects in many kinds of dyspepsia. Reichmann,[588] after making a large number of observations on individuals suffering from various kinds of gastric catarrh, came to the conclusion that bitters taken on an empty stomach have less effect than distilled water, except in cases where the secretion of the gastric juice is diminished, and that taking bitters along with meals positively lessens its quantity; further, that a prolonged use of bitters has no decided effect on the digestive capacity of the stomach. Fortunatoff, experimenting on cetrarin, the active principle of Iceland moss, found that this retards gastric digestion. Cheltsoff, too, most of whose experiments were performed upon dogs, found that bitter extracts, even in small quantities, though they increase the gastric secretion slightly, are prejudicial to digestion, large doses diminishing the quantity of the gastric juice. Quite recently, Fabitski has published the results of some very exhaustive observations made on eleven patients in Koshlakoff's clinic suffering from catarrh of the digestive tract,—that is to say, from affections in which bitters would usually be considered to be indicated. The preparations employed were (1) the extractum amarum of the Russian Pharmacopœia, which consists of equal parts of the extracts of gentian, absinthe, and buckbean (menyantha); (2) species aromaticæ, which consists of origanum majorana caryophyllus aromaticus; (3) quassia; (4) absinthe; (5) condurango. The last drug mentioned was tried in one case only, and it was included in the observations because it is described as a bitter by Nothnagel and Rossbach in their work on pharmacology, and because it had been found to act favorably on the digestive capacity of the gastric juice by Riegel and Cheltsoff. The points observed were the general acidity of the juice; the quantity of free hydrochloric acid (which was estimated by Sjoquist's method, the reaction of methyl violet, phloro-glucin, congo-paper, and tropæolin), and the existence of uric acid as shown by Uffelmann's test. The absorptive capacity of the stomach was judged of by the time iodide of potassium took to appear in the saliva, and the peristaltic action by the rapidity with which salol given by the mouth appeared in the urine. The general result of the observations was that, where a want of free hydrochloric acid in the gastric juice lay at the root of the indigestion, bitters given on an empty stomach, or, better still, a short time before food, produced decided improvement.

Whether bitters could be of as much value in cases where the indigestion is due to a want of peristaltic action in the stomach or to impaired nervous action, was doubtful; but, as very little effect on the peristalsis was produced by the bitters, as far as could be judged by the time taken by salol to appear in the urine, it appears scarcely likely that they would be equally useful in these cases; and the same remark may be made about cases due to want of absorptive capacity, as the time required by iodide of potassium to appear in the saliva was not appreciably affected by the bitters. There would appear, too, to be but little reason to think that bitters act on the gastric catarrh itself, their only effect being apparently to increase the amount of free hydrochloric acid. Again, it is not probable that bitters would be of much use in indigestion due to general diseases, such as phthisis, anæmia, scurvy, etc. It must be remembered that the observations were conducted in the wards of a hospital, and so it is quite possible that when combined with fresh air, exercise, and other accompaniments of home-life, the results of the treatment of bitters might be better. Fabitski considers the manner in which these drugs are given to be very important, as they probably do more harm than good if given with food. There did not appear to be any perceptible effect upon the total quantity of gastric juice secreted, and, as far as was observed, various bitters examined seemed to differ but little in their action.

Boric Acid.—E. Andrews,[231 Mar.] of Chicago, has published a series of experiments, in which he tested the value of boric acid as a preventive of decomposition in muscular tissue suspended in a liquid impregnated with the drug. His method consisted in placing 2 drachms (7.7 grammes) of fresh pork-muscle in many different bottles. The first bottle contained simple hydrant-water, the second a 1-per-cent. solution of boric acid, the third a 2-per-cent. solution, and the fourth a 3-per-cent. solution; in the fifth bottle a saturated solution was placed, and in the sixth a solution of the so-called glycerol or boro-glyceride; or, in other words, this solution contained 4 per cent. of boric acid, 12 per cent. of glycerin, and 84 per cent. of water. The results of his experiments show that the saturated solution of boric acid, so commonly employed by physicians as an antiseptic, does not hinder the growth of mycelium of some species, and further that every species of bacteria and mycelium were not entirely prevented from growing. It is evident from the studies of Andrews that boric acid can no longer be considered as a germicidal agent, and that it only covers a raw surface with a moisture which is not distinctly antiseptic, and yet is rather unfavorable to the growth of germs.

Bromide of Potassium.—Rossi and Agostini[59, May, 18] have recently made some experiments with a view to determine the action of bromide of potassium on the nervous centres. They gave 60 grains (4 grammes) of bromide of potassium daily to a dog weighing about 10 pounds (5 kilos). After 5 or 6 days it showed some difficulty in movement, and tremor. Later there appeared paralysis of the fore-limbs, and afterward of the hind-limbs, with loss of appetite, diminished sensibility, torpor, and, at the end of 15 days, death. A chemical examination showed the presence of bromine salts in the brain and cord. There were also evidences of considerable vascular dilatation, with hæmorrhages into the vascular sheaths and into the nervous tissue. In the cord there was, in addition, some swelling of the white fibres, with here and there a rupture of the fibres.

Carbonic Acid.—Richardson[38, Feb.] states that carbonic acid has uses which are essentially vital, because in its absence the phenomena of life could not be effectively carried out. The author was led to the researches about to be described by the accidental observation of the effect of charging a vegetable infusion with the gas under pressure; the solution so treated became dense, ropy, and mucus-like. Following up this hint, various infusions were exposed to the gas, and the productions afterward examined. From the observation of the effects of carbonic acid on vegetable infusions, the author passed to study it experimentally in solutions of albumen, serum of blood, defibrinated blood, mucus of the bronchial surface, etc. These various infusions were put into strong bottles, in a water-bath of 100° F. (37.77° C.), and then the carbonic acid was forced into each bottle. Serum was treated in this way, and was allowed to remain three days in contact with carbonic acid. On opening the bottle the same explosive action took place as when an ordinary aërated water is opened, and a thick, colloidal mass flowed out. On opening a bottle of defibrinated blood thus treated no explosion took place, but on pouring the dark fluid into a wide-mouthed vessel in the open air there was an instant change of color from dark to brilliant red.

Cocaine.—During the past year three researches upon this subject have been published, two of them emanating from the laboratories of the University of Pennsylvania. The first one in point of time was that by myself.[112 Mar.] I found that the drug produced a very extraordinary rise of bodily temperature, which was entirely independent of the convulsions which commonly occur after the administration of cocaine in toxic doses. I also found that the period of fever lasted from five to six hours, the acme being reached, as a rule, in twenty to forty minutes. Preceding the convulsions the animal falls into a condition of ecstatic happiness, followed by rushing round the room in a constantly narrowing circle, finally ending in simple rotation, from which the animal falls into violent convulsions. The second research was that of Reichert,[112 Apr.] who has studied this question very thoroughly indeed, employing the calorimeter in his researches. Von Anrep states that the temperature of the skin was always decidedly increased from the first when cocaine was given, while the rectal temperature at the same time remained unaltered, or was decreased from 0.5 ° to 1 ° C. (1 ° to 2 ° F.), the latter rising, however, during the convulsions to a similar extent. Danini (quoted by Anrep) notes that a rise amounting to 1 ° C. (2 ° F.) occurs during, and is dependent upon, the convulsions. Mosso always observed a rise, amounting to as much, at times, as 3.1 ° C. (5½ ° F.), and, contrary to Danini, found it to be independent of convulsions, since it occurred in animals rendered motionless by curare. Dose for dose, the action is more powerful and prompt when intra-venously injected than when it is given hypodermically. In Reichert's studies, comprising about twenty experiments on dogs, a marked increase was always noted. In all, Merck's hydrochlorate of cocaine was used and injected hypodermically. The fatal dose in dogs is about 0.03 gramme (½ grain) per kilo (2 pounds). Doses of 0.0025 gramme ($\frac{1}{25}$ grain) per kilo elicit fairly well defined symptoms of cocaine poisoning,—dilatation of the pupils, restlessness, salivation, increased frequency of respiration, more frequent and forcible pulse, increased temperature, etc. With such doses the temperature is increased about from 0.2 ° to 0.5 ° C. (⅓ ° to 1 ° F.). Doses of 0.01 gramme (⅙ grain) per kilo cause a rise of from 1 ° to 2 ° C. (1⅘ ° to 3⅗ ° F.). Doses of 0.02 gramme (⅓ grain) per kilo cause a rise of from 2 ° to 4 ° C. (3⅗ ° to 7⅕ ° F.). The increase is, however, not always in proportion to the dose, relatively small doses sometimes causing a considerable rise, and *vice versâ.* The potency of cocaine in this respect is altogether remarkable, and places the drug in the foremost rank of pyrogenic agents; indeed, so powerful is it at times that animals suffer from heat-dyspnœa. Moreover, the action is one of notable permanency, the temperature after large but sublethal doses remaining above normal for six or eight hours or more. Following the rise of temperature and subsequent return to the normal, a fall ensues, which, even after moderate doses, lasts for some hours. The results of these experiments are not in accord with von Anrep's statement above referred to, since in every instance a marked rise of temperature occurred from the first simultaneously in the rectum and axilla (skin), the thermometers at both points of observation in Reichert's experiments being placed in position before giving the drug, being allowed to settle, and not being removed during the entire time of observation. The alterations in temperature progressed *pari passu* in both cases. The rectal temperature rises more rapidly than that of the skin, this being due, to a large extent, if not wholly, to the quicker reaction of the thermometer in the former position. The thermometers used, when placed in the rectum, settled in from three to five minutes, but from ten to fifteen minutes were required in the axilla, although the thermometers were identical in make and sensitiveness. In normal animals, with doses of .0025 gramme ($\frac{1}{25}$ grain) per kilo, the increase of temperature reaches a maximum during the first hour, declines to normal usually in the second hour, and falls below the normal during the fourth hour about 0.1° C. ($\frac{1}{5}$° F.), and gradually returns. With doses of 0.01 gramme ($\frac{1}{6}$ grain) per kilo, the maximum is reached during the first or second hour, the normal temperature is regained about the fourth or fifth hour, the temperature falling to from 0.3° to 1° C. ($\frac{3}{5}$° to 1$\frac{4}{5}$° F.) below during the sixth to eighth hour. With doses of 0.02 gramme ($\frac{1}{3}$ grain) per kilo, the maximum is recorded during the first or second hours, falls rapidly during the third and fourth hours, but continues above the normal from 0.5° to 2° C. (1° to 3$\frac{3}{5}$° F.), even at the end of six or eight hours, when observations ceased. Von Anrep and Danini state that the increased temperature reaches its maximum during the convulsions, while the latter further asserts that no rise occurs in curarized animals. This suggests that the motor excitement may be an important if not an essential factor. Mosso, however, found that even in curarized animals a rise is still observed. When using the calorimeter, Reichert found that the action of the drug varied with the dose employed. In the first series of experiments with doses of 0.0025 gramme ($\frac{1}{25}$ grain) per kilo, it was found that heat production reached a maximum during the first hour, declined to nearly the normal during the second, then gradually increased to the end of the fifth hour, when the observations ceased. While the production of heat was on the increase, heat dissipation was diminished below the normal, reaching a maximum during the first hour; dissipation gradually increased during the second hour, becoming greater than heat production, and continued greater until during the fifth hour, when it fell below. It is plain, therefore, that we have here two factors concerned in the rise of bodily temperature during the first hour, *i.e.*, increased production of heat and diminished dissipation. During the second hour dissipation becomes greater than production, hence the reserve heat is drawn upon and the bodily temperature falls. During the fifth hour a trifle more heat is produced than dissipated, with a corresponding insignificant rise in temperature. In the second series, with a dose of .01 gramme ($\frac{1}{6}$ grain) per kilo, the maximum and an enormous increase of heat production occurs during the first hour, rapidly falling during the second hour, going below the normal during the third hour, and continuing to decline during the fourth and fifth hours. Heat dissipation does not equal by far the amount of increase in heat production. There is a decline during the second hour, but this is not so great as the decline in heat production; hence, more heat is given off than produced, and bodily temperature falls. Heat dissipation, although falling from now on to the end of the experiment, continues greater than the heat production, and, as a consequence, there is a continuous fall of the animal's temperature. In the third series, with doses of 0.02 gramme ($\frac{1}{3}$ grain) per kilo, we find features which differ from the preceding series. During the first hour heat production is rapidly and enormously increased, but the maximum is not recorded until the second hour; a rapid decline occurs during the third hour, but not so great as in the second series; a slight fall then follows, the heat production (although not shown in the tracings) continuing far above normal, even at the end of the seventh or eighth hour, or longer. The curve of heat dissipation is also to be particularly noticed. A somewhat rapid rise occurs during the first hour, but the maximum and more important increase is found during the second hour; it then declines, but, being above the curve of production, more heat is dissipated than produced, hence a fall of temperature. In a comparison of these three series it will be noticed that only in the first does the increase of bodily temperature depend in the least upon diminished heat dissipation, for here only does dissipation fall below the normal during the continuance of the rise of temperature. In the other series it is clearly shown that, while both heat production and heat dissipation are above normal during the stage of increased temperature, the amount of heat produced is primarily largely in excess of the amount dissipated ; and, even during the stage when heat dissipation is greater than production, the animal's temperature may remain above normal for some hours, or until such a time when the excess of the former is able to carry off the heat added to the reserve during the first stage.

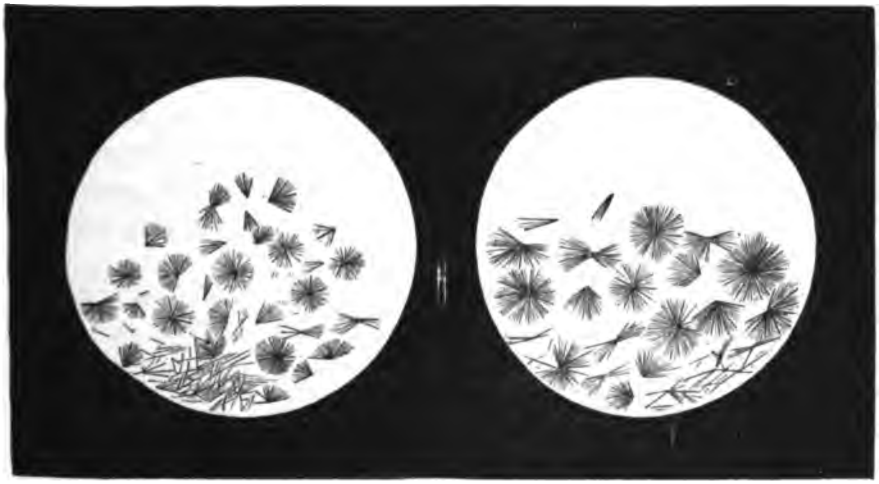
In this connection, the experiments which have been carried out by Stockman$^{2}_{\text{May 18}}$ with this alkaloid upon rana taurania and rana esculenta are interesting. He finds that when 2 or 3 milligrammes ($\frac{1}{32}$ to $\frac{1}{20}$ grain) are given the symptoms are characteristic. The frog shortly becomes torpid, sluggish, and awkward in its movements, respiration is slowed, and the pupils are dilated. The nervous system is evidently depressed. It soon lies flaccid on its belly, with its head resting on the table and its legs limply extended. Sensitiveness to external stimuli is much diminished, the animal makes no response if its skin be gently stroked or if its legs be gently shifted, but, with slight pinching of the toe or skin, it struggles violently and kicks out its legs in a manner which shows that its motor powers are perfectly retained. This characteristic condition has been noticed more or less fully by many previous observers. The reflex reply to sensory impressions is exaggerated, the extension of the legs being tetanic in its intensity, but at the same time there is a certain degree of flaccidity about it. The condition resembles that seen after large doses of morphine, or in the last stages of strychnine poisoning when there is exhaustion of the cord. Soon sensory impressions are more difficult to produce, and their reflex motor results become more feeble, until there may be simply a faint twitch on stimulation. Before this last stage is reached, however, the frog passes through a rather peculiar condition as regards its reflexes. On pinching the toe a violent spasmodic reflex is obtained, but on repeating the stimulation this gets weaker, and on the third or fourth time there is no response. After a short rest another spasmodic but flaccid movement can be elicited. The centres in the cord are evidently in a condition easy of exhaustion, and it seems as if they had lost their power of properly conserving and distributing their energy, and were compelled, when a sufficient stimulus is applied, to discharge it all in one great effort. With such small doses as 2 or 3 milligrammes ($\frac{1}{32}$ to $\frac{1}{20}$ grain) a very short time is required for them to recover after each discharge. Electric stimuli applied high up are readily enough conveyed along the cord, and cause contraction of the leg-muscles every time. The motor and sensory tracts are no doubt somewhat depressed, because cocaine paralyzes every kind of nerve-tissue; but the amount of depression is small with the above doses, and is only sufficient to prevent the conduction of weak stimuli. The non-appreciation of slight stimuli, such as stroking the skin, is accounted for by the depression of the sensory tracts in the cord, while the sensory centres are also dulled to a considerable extent. Owing to this, so-called spontaneous convulsions are never observed. During the progress of the poisoning the frog loses its power of localizing a sensory impression. This can be shown by placing a small piece of paper, moistened with acetic acid, on the skin, when the animal at first removes it in the ordinary way. But very shortly afterward such an application only causes an irregular struggle, without any attempt being made at removal, and still later no notice whatever is taken of it. Stockman also found that sensory impressions conveyed from the terminations of peripheral nerves in the skin are not felt at a stage of the poisoning when stimulation of the nerve-stems themselves (pinching skin in forceps) is readily perceived. The second stage of cocaine poisoning in the frog then gradually comes on. The torpid condition passes off, the animal sits up. the reflexes are increased as in slight strychnine poisoning, and this increase lasts for some days longer, when the frog returns to its normal condition. With such small doses the muscles and motor nerves are not appreciably affected. When 0.01 to 0.02 gramme (⅙ to ⅓ grain) is given to a frog, the effects are much the same as with smaller doses, but are more marked, while the motor nerves are, in addition, greatly affected. The torpor comes on more rapidly, is much more profound, lasts longer, and may pass into complete sensory and motor paralysis. The pupils are diminished in size to mere slits. The reflexes are at first quite abolished, then later on the torpor becomes less deep, and one gets a very flaccid tetanus on stimulation, the depression finally passing off, to be succeeded by great exaggeration of reflexes. The motor nerves become diminished in their electric irritability early in the poisoning, but in addition to this their condition later on is peculiar, and comparable to that of the spinal cord; namely, a condition in which they become very rapidly and easily exhausted. If, some time after administering to a frog a large dose of cocaine, the sciatic nerve be exposed and stimulated with the interrupted current, it is found that, whether the stimulation be rather weak, moderate, or strong, the muscles of the same leg contract, although not with their normal violence. On repeating the stimulation immediately after, an extremely feeble contraction may be obtained, or more usually none at all, and on the third stimulation no contraction occurs, although the muscles are quite excitable to direct application of the electrodes. If the nerve be then allowed a very short rest (½ to 1 minute, or thereabouts) the application of a weak current to it again causes the muscles to contract. The motor nerves, therefore (like the cord with small doses), are in a condition not so much of complete paralysis as of partial paralysis, with great tendency to exhaustion; at least, if their inability to conduct electric stimuli to the muscles signifies exhaustion. The voluntary muscles at the point of injection are generally less excitable than those which have not come into contact with the cocaine solution, but, except in one or two instances, the difference was trifling. The lethal dose is 0.04 to 0.045 gramme (¾ grain). To summarize in very general terms the action of cocaine on the nervous system of the frog, we find (1) that it depresses the energizing power of all forms of nerve-tissue; (2) that the gray cells of the cord are affected in a manner which causes them to discharge their energy violently, but also to exhaust themselves rapidly; and (3) that the spinal depression passes off, and is succeeded by a condition of greatly increased reflex excitability.

Cocamine.—Cocamine, in the dog, is an extremely active muscle poison, and, on injection subcutaneously, is rapidly absorbed by the neighboring muscles, which pass into a condition of rigor mortis, if the dose be large enough. From what has been previously said, however, it is evident that with small amounts the muscle protoplasm must suffer only such changes as can be recovered from with comparative ease, and which do not proceed so far as rigor mortis. With large doses the local rigor gradually spreads to the more distant muscles, those which receive most blood being most affected. Frequently after death the muscles farthest from the heart, such as those of the forearm and leg, contract quite well to electric stimulation, while all the others are non-excitable. If the solution be injected into a fleshy part, such as the thigh, we may often enough find that one-half of a muscle is quite dead and non-contractile, while the other half, which has not absorbed the cocamine solution, contracts apparently as usual. Gradually, however, the whole muscle dies. Stronger proof could hardly be given of the great tendency of muscle protoplasm to absorb these bodies. *Mammalia.*—When 0.03 to 0.04 gramme (½ to ¾ grain) is given subcutaneously to a rabbit, there may be no symptoms, but sometimes restlessness and mental excitement are seen. Gramme 0.05 (⅘ grain) causes, in a few minutes, great dilatation of pupils, restlessness, and slight but well-marked increase in the reflexes. All this passes off in an hour or so, and is succeeded by a distinct desire to remain quiet and not move about. Gramme 0.08 (1¼ grains) gave more pronounced symptoms,—marked restlessness, great dilatation of the pupils, tremulousness, and slightly increased reflexes. But the most typical effects are weakness of gait, depression of general sensibility, and tendency to lie down, while the mental faculties seem quite active. When roused, the rabbit runs about actively, but, as soon as it is left to itself, subsides again. Respiration is somewhat quickened; the heart maintains its rate, but is usually more feeble. Gramme 0.1 (1½ grains) always proved a fatal dose (1298- to 2080-gramme—2½ to 4 pounds—rabbits), death sometimes occurring in a few minutes from paralysis of respiration, sometimes only after several hours. In the latter case there was always enormous dilatation of pupils, indifference to stimuli, and great muscular weakness, the animal lying down and sprawling out its legs. Sometimes there was no increase in the reflexes, but usually the rabbit gave frequently slight, spontaneous starts, which could also be elicited by stimulation. The heart became feeble and fluttering, but usually quickened, superficial, and panting in character. Two grammes (30 grains), given by the mouth, caused great depression, lasting for about five hours, while 5 grammes (75 grains) proved fatal after twelve hours. In both cases there were no signs of increased spinal excitement, simply great muscular depression. In cats (1690 to 2400 grammes—3 to 5 pounds), 0.3 to 0.4 gramme (5 to 6½ grains) was a lethal dose administered subcutaneously. Small doses caused excitement, dilatation of pupils, twitching of tail, ears, and muscles of head and neck, while 2 decigrammes (3 grains) or more produced great muscular and nervous depression, frequent vomiting, severe diarrhœa, and great weakness of gait. There was either a very light or no increase in the reflexes. When given by the mouth it was invariably rejected sooner or later, so that no symptoms beyond depression and severe vomiting were observed. In cats death occurred always many hours after administration. The post-mortem appearances are worthy of particular attention, as they throw great light on its mode of action and the cause of death. In rabbits and cats they are practically identical. On opening the abdomen, immediately after death, peristalsis of the stomach and bowels is seen to be going on with remarkable energy. Particular bands of muscular fibres contracting powerfully at intervals frequently give the stomach an hourglass appearance, while less violent contractions pass continuously over the whole surface of the viscus. The bowel is in a similar condition, with a thick, firmly-contracted wall and much diminished lumen. The bladder is empty and strongly contracted. At the point of subcutaneous injection the muscular fibres no longer respond to electric stimulation, while the other muscles contract quite well or feebly, according to the time which has elapsed between administration and death. If death has occurred rapidly they have not had time to get thoroughly poisoned. The sciatic nerve is sometimes quite normal in excitability, or may be more or less dulled. Rigor mortis comes on very quickly and is very marked. The heart is sometimes in systole, sometimes in moderate diastole. We see, therefore, that in mammalia cocamine is a muscle poison, and exercises on the nervous system an action resembling that of cocaine. The cause of death, when it occurs slowly, is due to gradual poisoning of the respiratory muscles; while, when it occurs rapidly, it is from paralysis of the respiratory centre. The motor nerves are never sufficiently affected to be paralyzed. The vomiting and diarrhœa are due to the violent contraction of the walls of the alimentary canal. In mammalia, when given by the ordinary channels, there are no marked symptoms of stimulation of the central nervous system. All we can observe is slight mental excitement and a slight increase in the spinal reflexes, but these are greatly thrown into the background by the muscular depression and indifference to severe stimuli. Cocamine is probably so rapidly absorbed by the muscles that only a small quantity ever reaches the spinal cord. To ascertain whether direct injection into the blood would cause its carriage to the central nervous system, Stockman administered 0.05 gramme (¾ grain) in 1 cubic centimetre (16 minims) to a rabbit per venam jugularem, but death ensued at once, apparently from paralysis of the heart. The animal gave a few gasps and expired. In another rabbit, .03 gramme (½ grain) was injected into the left femoral artery. The animal was at first rather collapsed, and could not sit up, but recovered greatly in about half an hour. There were no symptoms of increased reflex. Four minutes after the injection it was observed that the left leg was quite helpless. Three hours after administration the rabbit was killed, it being then apparently quite normal, with the exception of paralysis of the left leg. All the muscles supplied by the femoral artery below the point of injection were quite dead, all other muscles of the body apparently being normal. In the left thigh the lower parts of many muscles were non-excitable, motor nerves elsewhere being normal. It is evident, therefore, that the muscles locally must absorb the isotropyl-cocaine to a large extent, and prevent it reaching other parts of the body in sufficient quantity to give rise to very marked symptoms.

Cod-liver Oil.—Ippolitoff[15 Nov.] has made an attempt to elucidate the beneficial action of cod-liver oil. He remarks that two opposite explanations of this action have been suggested; the first, which is that advanced by the majority of writers on the subject, being that cod-liver oil is merely a peculiarly easily assimilated form of fat, while the second ascribes the therapeutic value to the non-fatty constituents. In accordance with these divergent views two new substitutes for cod-liver oil have been introduced,—lipanin by Mering, which consists of the purest olive-oil, to which 6 per cent. of oleic acid has been added, and which is said to emulsify very readily; and morrhuol by Lafage and Chapoteau, which contains no oil at all, but merely the other constituents, viz., iodine, bromine, and phosphorus in minute quantity, extracted from cod-liver oil by the action of a solution of carbonate of sodium and by alcohol. Ippolitoff's object was to determine the effects of cod-liver oil, white and yellow, on the assimilation and metabolism of nitrogen, and on the increase of body-weight, and to compare them with the effects of ordinary oil and with the two new preparations mentioned above. For this purpose he made a series of observations on 8 children in Bystroff's wards, of which he has charge as ordinator, a post corresponding to that of the French *chef de clinique*, rather than that of our house-physician, to which it is superior in being more permanent. Each observation extended over nineteen days and was divided into three periods. During the first period (five days) no medicine was given; during the second period (seven days) 4 children were given colorless cod-liver oil, and 4 one of the other substances,—almond-oil, yellow cod-liver oil, lipanin, and morrhuol; during the third period (seven days) the 4 children who had had colorless cod-liver oil were given one of the other substances, and the 4 who had had these were given colorless cod-liver oil. The diet, which was as far as possible the same throughout, consisted of milk, white bread, and chops, and the urine and fæces were collected and examined daily. The oils were given twice a day before meals in dessertspoonful doses, and of the morrhuol 3 capsules were given daily before meals. The nitrogenous determinations were performed by the Kjeldahl-Borodin process. The actual results of each estimation are given, but the whole may be summarized as follows: 1. The internal use of colorless cod-liver oil diminishes the nitrogenous metabolism, this diminution being greater than when almond-oil is given and less when lipanin is employed. 2. Yellow cod-liver oil and morrhuol increase somewhat the nitrogenous metabolism. 3. While colorless cod-liver oil and almond-oil were being given, in some cases the assimilation of nitrogen increased while in others it diminished; during the administration of lipanin assimilation was increased; and, during the time yellow cod-liver oil or morrhuol were being given, it was decreased. None of these variations, however, were very great, the maximum increase occurring during the administration of lipanin, and consisting of an increase of the assimilated nitrogen from 84.7 per cent. to 87 per cent. of nitrogen ingested, and the maximum decrease occurring during the administration of morrhuol, and consisting of a fall of the assimilated nitrogen from 94 per cent. to 91.5 per cent. of the nitrogen ingested. 4. The body-weight increased well under colorless cod-liver oil; there was a greater increase when lipanin was given, and a smaller when yellow cod-liver oil or almond-oil were given. 5. The metabolism in children of 6 or 7 years of age was found to be much the same in amount as in adults.

Colchicum.—The physiological action of the alkaloids of this drug have been studied very thoroughly by Ferrer y Leon,[112 July, Aug.] in the laboratory of experimental therapeutics at the University of Pennsylvania. Using chiefly for his experiments the colchiceine of Merck, Ferrer found that the drug in poisonous doses produces nausea followed by vomiting of white froth and a swaying movement to and fro of the body, while the respiratory movements are accompanied by slight spasmodic contractions of the abdominal walls. At the same time violent purging comes on accompanied by severe tenesmus, rapid breathing, great weakness, and death from exhaustion. At the post-mortem the blood was found to be of a dark color, the intestines were full of mucus and covered with ecchymotic spots, and under the microscope the lungs and kidneys were found to be dotted with minute hæmorrhages. On the nervous system he found that it produced a progressive failure of reflex activity, probably dependent upon a depressant action upon the sensory nerves. On the bodily temperature colchiceine produced a very marked fall. On the heart and circulation it was found that 8 milligrammes ($\frac{1}{8}$ grain) of colchiceine, when injected into the jugular vein of a medium-sized dog, produced very little effect; but that large doses caused a fall of arterial pressure and a slight slowing of the pulse, which is due to depression of the heart. In the studies which Ferrer made upon the action of colchiceine, the alkaloid being made by John Marshall, of the University of

Pennsylvania, it was found that marked weakness, stupor, and lowering of bodily temperature were produced by poisonous doses. On the nervous system colchiceine decreases reflex activity, not by depressing the sensory nerves, as does its sister alkaloid, colchiceine, but by acting upon the motor nerve-trunks. When 10 milligrammes ($\frac{1}{6}$ grain) of the drug were injected into the jugular vein of a dog weighing 13 pounds (6 kilos) there was produced a slight slowing of the pulse, probably due to stimulus of the peripheral ends of the vagus nerve, as was proved by the fact that the previous administration of large doses of atropine prevented the colchiceine from decreasing the cardiac rate. As colchiceine is a substance which is difficult of preparation, and is frequently impure, the following cuts of the crystals under the microscope, as obtained by Marshall for Ferrer, are of very considerable interest.



CRYSTALS OF COLCHICEINE.
(*University Medical Magazine.*)

Cold Packs.—Blagovêshchenski[15 Nov.] has studied the effects of general cold packs on healthy persons. He found that they produce increased nitrogenous metabolism, increased assimilation of nitrogen, increased loss by the skin, and that they diminish the quantity of nitrogen retained in the body. They slow the pulse and respiration and raise the arterial pressure and lower the temperature. Lastly, they increase the appetite and cause the patient to sleep well, giving him increased strength, and making him feel as if he were enjoying particularly good health.

Coffee.—That this drug, so commonly used in every-day life, is capable of producing serious symptoms, has been proved during the past year by an instance in which a strong and vigorous man employed 2 cupfuls, or about 2½ ounces, of the ground berries in a strong infusion.[116] Two hours and a half after drinking the liquid, dizziness came on, followed by severe cardiac pains and tremors, at first localized, afterward distributed over the entire body; at the same time there was great flushing of the face, palpitation of the heart, nausea, and vomiting. Six hours afterward the tremors were still intense, especially in the face and hands, the muscles of the mouth being so involved that speech was difficult. The face was deeply suffused and the forehead covered with sweat. Although there was much pain over the heart the heart-sounds were normal and the pulse was at 100 and very full and bounding. Micturition was very frequent and profuse. The treatment consisted in the administration of 6 drachms of bromide of potash in two doses, which produced sleep and complete convalescence in three days.

Coronillin.—This is a new alkaloid whose physiological action seems to be chiefly expended upon the heart, and which has been studied by Gley and Schlagdenhauffen,[8] who have reached the following results: In a dose of 0.005 gramme ($\frac{1}{12}$ grain) it acts identically with digitalis upon the heart of a frog. Upon the dog which was chosen to represent the mammalia, it first accelerated and afterward slackened the pulse. As this slackening of the pulse was found to be completely set aside by previous section of the vagi nerves, and by the previous administration of large doses of atropine, it of necessity follows that the effect of the drug must be exercised through the inhibitory centres in the medulla. Upon arterial pressure it was found to produce a marked increase, but, after the dose, there was finally a persistent fall. In exactly the same way as digitalis produces low arterial pressure by preventing the heart from expanding sufficiently to expel any quantity of blood, coronillin would seem to affect the circulation.

Creolin.—Sirena and Alessi[589] have carried out some experiments with creolin to determine its action upon the comma bacillus of Koch, and in consequence report the drug as being of great value in cholera. They found that an addition of from 8 to 10 drops of a 3-per-cent. aqueous solution of creolin is sufficient to completely sterilize a pure culture in broth. Again, that 1 to 4 drops of the same solution added to 90 drops of the infected broth will prevent the development of the germ, and, while 1 to 3 drops of the solution retard the development of the microbes, 4 or more prevent it entirely. One of the most important conclusions reached by these investigators is that, as solutions of creolin are apt to lose their efficacy, fresh solutions should be used whenever a decided effect is desired.

Creasote.—The question as to whether the antidotes consisting of the soluble sulphates, which are so efficacious in carbolic acid poisoning, would be equally effective in poisoning by creasote, derived from beech-wood, has been studied by me[112 Apr.] during the past year. It will be remembered that these substances unite with carbolic acid, forming sulphocarbolates which are virtually innocuous. In these experiments it was found that animals receiving very large poisonous doses of creasote could invariably be saved if soluble sulphates in sufficient quantity were administered.

Enemata.—Aristoff[15 Nov.] has experimented on healthy individuals by administering enemata of about ¾ of a quart (.75 litre) of warm water, and determining the amount of nitrogenous assimilation before and during the treatment. He found that the assimilation was increased except in cases where the subject was suffering from constipation, under which circumstances it was diminished.

Lazarevich[15 Nov.] has investigated the effects of copious cold enemata, employing as the subjects of his experiments 10 healthy persons, 17 patients suffering from chronic disease, and 15 patients with acute affections. The subject was kept in bed for at least four hours before the enema, and numerous observations made of the temperature in different situations, of the blood-pressure by Basch's sphygmomanometer, and of the pulse and respirations, both before and after the enema. This was administered by a long rectal tube, the temperature of the injected water varying in different cases from 20° C. (68° F.) to 5° C. (41° F.). The general results obtained were, that the temperature was lowered, and did not usually attain its former height until about half an hour after the enema had been evacuated. There was also found to be a marked decrease in the blood-pressure, occurring at the time of injection, and persisting till about half an hour after the evacuation. The pulse and respiration were slowed, and they had not usually regained their original rate half an hour after the enema had been evacuated.

Eschscholtzia Californica.—This plant grows largely in the State of California, and possesses certain sedative properties. Chemical analysis by Ter-Zakariantz[67, Jan. 15] shows that it contains a basic substance giving all the reactions of morphia. In a series of experiments upon animals it was found that the alcoholic extract causes general prostration, stupor, accelerated respiration, and slow heart-beat. When administered to patients the results obtained were identical with those produced by morphine, but no inconvenience was complained of even when it was administered for so long a period as sixteen consecutive days. It was noted that, while the sedative effects were not particularly strong, the drug continued in force for a considerable time after its administration ceased. The dose for a human being is 40 to 160 grains (2.5 to 10 grammes) a day in mixture, syrup, or pill of the alcoholic extract.

Ether.—The statement of Kratschmer, that the arrest of respiration in the early stages of ether anæsthesia depends upon the local irritant action upon the peripheral filaments of the trigeminal nerve in the upper air-passages, has been contradicted by me during the past year.[112, Apr.] In a series of investigations it was found that the same arrest occurs if ether be held over an opening in the trachea, the trigeminal nerve being carefully protected from the action of the fumes. Kratschmer is undoubtedly correct in supposing that a trigeminal irritation and consequent reflex spasm of the glottis is one cause of the arrest of breathing, but it cannot be due entirely to this cause. A large factor, which is constantly present, consists in irritation of the sensory filaments of the vagus nerve.

Exalgine, or Methylacetanilide.—Exalgine, or methylacetanilide, is an aromatic toxic derivative, capable of acting energetically upon sensibility and the motor nerve-system, and later upon the respiratory and circulatory system. In toxic doses it acts upon the blood-globules like all poisons of the same class, and diminishes the energy of the gaseous changes therein. Gaudineau[67, Sept. 15] states that it kills in doses of 45 centigrammes (7 grains) per kilogramme (2 pounds) of weight of the animal; the equivalent toxic power is therefore very high. In mortally toxic doses, the animal exhibits violent convulsions and insensibility; it dies quickly from asphyxia. In toxic, not mortal, doses, 20 centigrammes (3 grains) per kilogramme, convulsion phenomena are observed. The temperature is not reduced except when administered in small repeated doses during several hours. With feverish patients, to which the remedy has been administered, more accentuated troubles have been observed. It acts first upon the sensibility; its action upon thermogenesis comes later on and is accessory.

Glycerin.—According to the clinical researches of Pavy, glycerin increases the polyuria of diabetes almost one-half, and for this reason he thinks it is not to be employed in this class of cases as a substitute for sugar. Again, the experiments of Luchsinger and Weiss have seemed to show that the administration of this substance increases the amount of glycogen in the liver to a very considerable extent; while, on the other hand, the researches of Eckhard and Luchsinger have also proved that glycerin very frequently tends to prevent glycosuria when brought about by puncture of the so-called diabetic centre in the floor of the fourth ventricle, if the drug be given hypodermically. Luchsinger, therefore, believes that while glycerin might increase the amount of glycogen, it also prevents its transformation into sugar by inhibiting the amylolytic action of the hepatic ferment. Eckhard believes that the hypodermic injection of glycerin produces such radical changes in the blood and general system that no conclusion can be made of the proper influence exerted by it. In an exceedingly useful and interesting paper, both from a physiological and clinical stand-point, Ransom,[178, v.I, p.302] of London, has recently gone over this work in a satisfactory manner, and has tried, with considerable success, to unravel the somewhat complex function of the part, as well as the equally complex opposing statements of investigators. He points out that one element of fallacy in all these experiments is the fact that glycerin, when given hypodermically, must reach the liver so slowly and in such a diffused state as to be almost powerless, and, in consequence, he introduced the glycerin into the alimentary canal. All the experiments seem to have been made in a most painstaking and careful manner, and, as we have not space for their detail, we must pass them by in order to reach the results attained. They are as follow: 1. Certain forms of glycosuria may be checked by glycerin. 2. Glycerin acts more efficiently when introduced into the alimentary canal than when injected subcutaneously. 3. Glycerin checks glycosuria by inhibiting the formation of sugar in the liver. 4. By this means glycerin increases the quantity of glycogen found in the liver. While these conclusions are not final in proving the value of glycerin under such circumstances, it seems to me that they are of great value in pointing toward a solution of one of the most complex subjects with which physicians are called upon to deal. In a way, Ransom promises clinical researches at a future time, and we shall look forward to them with interest. The quantity of glycerin I should recommend to be given, clinically, is one drachm (3.7 cubic centimetres), diluted with water at least one-half.

Heat.—Kalashnikoff[15 Nov.] has made a series of observations on the therapeutic effects of heat on syphilis, and especially on syphilitic eruptions, his patients being inmates of a St. Petersburg lock-hospital for women and children. The heat was applied where possible by means of partial hot-air baths administered to the affected part for half an hour twice a day, the part being enveloped in hot flannel immediately afterward, and remaining so protected until the next hot-air bath. The temperature never exceeded 116° F. (46.6° C.). Where the eruption was on the back or neck or on some part which it was impossible to insert in a hot-air chamber, India-rubber hot-water bottles or tubes, through which the hot water was kept flowing, were employed. When both arms or legs were affected in a symmetrical manner the treatment was confined to one side, the other being left untreated for the purpose of comparison. The results showed that, generally speaking, the heat treatment acted very energetically and beneficially on syphilides, both when employed alone instead of mercurials and iodides, and also when used in conjunction with these remedies. Often heat proved beneficial when the ordinary specifics had failed. Among other observations it was noted that hard chancres healed and the induration disappeared in from 8 to 16 days; roseola and papular erythema disappeared in from 4 to 8 days; various forms of papular and impetiginous syphilides, with marked pigmentation, disappeared in from 8 to 21 days; non-ulcerated tubercles and gummata disappeared in from 7 to 24 days, but those which had already begun to ulcerate required from 1 to 6 weeks; periostitis was cured in from 10 to 24 days; ostoses were not affected; syphilitic ulcers, consequent on the breaking down of gummatous periostitis, required treatment of from 6 weeks to 3 months or more, and necrosis of bone frequently required many months' treatment before the sequestra could be removed. From the results of experiments made on dogs, Rallière[319, N.28] arrived at the following conclusions: The body temperature may be increased to 5° C. (107.4° F.) or even 6° C. (109.2° F.) above the normal if this increase is temporary and immediately followed by a cooling off. The danger of hyperthermy lies only in the duration. Animals which have stood an overheating quite well may die within the next twenty-four hours, but after the expiration of this period unfavorable occurrences are not apt to take place. If the animal has previously been given chloral the danger is incomparably greater; death often occurs sooner at lower temperatures and with shorter duration of the effect. Often general convulsions will occur immediately after the increase of temperature, or later, within thirty-six hours; in this case the animals die with a subnormal temperature as low as 26° C. (78.8° F.), or with a temperature nearly normal. Sometimes death ensues without previous convulsions. The author concludes that high temperatures, or continued increase of body temperature, are a contraindication to the use of chloral. He also thinks that in administering medicine the degree of fever should be taken into consideration more than has been done so far.

Hedwigia Balsamifera.—This plant is a native of the Antilles, and has been studied by Gaucher, Combemale and Marestang.[152, Oct.4,'90] Using alcoholic and aqueous extracts of the bark and of the root and stem, they found that the poisonous properties depended upon the presence of an alkaloid and resin, the latter being much more powerful in its action than the former. The symptoms produced when poisonous doses of the resin are administered consist in paralysis of the hind limbs and a marked lowering of the bodily temperature. Later on, general convulsions and dilatation of the pupils follow the stage of paralysis, and the peripheral capillaries are widely dilated. If a sufficient dose to produce death be given the respiration becomes exceedingly irregular, and death results from cardiac paralysis. After death all the internal organs are found to be congested, the lungs especially being most affected. In their studies of the action of the alkaloid they found that it is essentially a convulsant involving the spinal cord. It is worthy of note that these investigators regard the resin as being very similar in its action to curare, in that they found it to paralyze the peripheral motor nerves.

Hydrocyanic Acid.—During the year Grehant[8, Sept. 28] has made a series of experiments on dogs which closely correspond with those at one time propounded by Claude Bernard on rabbits. They consisted in injecting amygdalin and emulsin into the veins, so that on coming together they would form the acid. The changes which took place consisted in a slowing and final arrest of the respiratory movements, followed several minutes afterward by stoppage of the heart. These same results are reached even when artificial respiration is kept up from the first. Two cubic centimetres (30 minims) of a 1 to 400 solution of hydrocyanic acid injected into the jugular vein of a dog weighing 14.3 kilogrammes (38 pounds) is sufficient to produce death by the methods named above. When the drug is given hypodermically to the frog the same phenomena occurs, preceded by a complete loss of reflex activity.

Iodoform as an Antiseptic.—It is known that for some time doubts have been entertained as to the antiseptic properties of iodoform. Moreover, iodoform has the inconvenience of being disagreeable and difficult of employment, owing to its peculiar odor. In seeking to remedy these defects, von Jaksch has stated[224, Apr. 27] that all the antiseptics of a specific odor possess the property of completely masking that of iodoform; at the same time their own odor becomes scarcely perceptible. The following antiseptics may therefore be employed as deodorants and disinfectants of iodoform: thymol, naphthaline, tar, creolin, etc. It is preferable to employ for this purpose creolin itself. Iodoform creolinized, containing from 1 to 2 per cent. of creolin, presents, well triturated, a powder of a light-brown color, of a faint aromatic odor, and is soluble in alcohol and in ether. The water dissolves the creolin, but leaves the iodoform undissolved. For some time the author employed the creolinized iodoform for the treatment of wounds, abscesses, etc., in the form of a powder or of gauze. The results were not inferior to those obtained by iodoform alone; on the contrary, this preparation seemed to diminish the secretions and to stimulate the granulations.

Lithia, Action of Carbonate of.—Gorsky,[90, Nov.] of Loesch's laboratory in St. Petersburg, has carried out four experiments on healthy men, each lasting 24 days, and being divided into three periods. During the first and third periods, each of seven days' duration, the patients received no lithia; while, during the second, of ten days' duration, they were taking carbonate of lithia in gradually ascending doses, from 2 to 8 grains (0.13 to 0.51 gramme) a day (with an effervescent water). The conclusions drawn from these laborious experiments may be summed up as follows: 1. Carbonate of lithia very markedly increases the nitrogenous metamorphosis. (The latter varied between 74.03 and 81.48 per cent. during the first period; between 82.3 and 88.30 during the second; and between 71.63 and 85.57 during the third.) 2. It also augments the nitrogenous assimilation (which oscillated between 88.51 and 93.21 per cent. during the first period; between 89.88 and 96.14 during the second; and between 94.98 and 97.36 during the third). 3. It markedly raises the daily amount of urea. (The average daily quantity of urea excreted varied from 36.105 to 38.263 grammes—557 to 590 grains—during the first period; from 39.368 to 44.434 grammes—607 to 675 grains—during the second; from 40.951 to 43.205 grammes—633 to 668 grains—during the third.) 4. The same holds true in regard to uric acid. (The average daily amount was from 0.7125 to 0.8269 gramme—11 to 13 grains—during the first period; from 0.97 to 1.0558 grammes—15 to 16½ grains—during the second; from 3.6867 to 0.8180 grammes—55 to 12 grains—during the third.) 5. The amount of urea continues to increase still further, even after discontinuing the administration of the lithia salt, while that of uric acid decreases. 6. Lithia increases the daily amount of urine, the increase lasting even after discontinuing the salt. (The average was during the first period from 1858 to 2520 grammes—59 to 81 ounces; during the second period from 2325 to 2622 grammes—78 to 85 ounces; during the third from 2225 to 2665 grammes—71 to 86 ounces.) 7. The specific gravity of the urine somewhat decreases, the reaction remaining acid. 8. The bodily weight markedly rises. 9. It is very probable that lithia favors the transformation of uric acid into urea, and hence, by freeing the system from the acid, promotes a more energetic cellular action.

Mercury, Biniodide of.—During the past few years several clinical papers have appeared in which it was stated that the biniodide of mercury is a better antiseptic than is the bichloride, on the ground that it does not form an albuminate, and therefore become innocuous to the germ. Recently, in the contributions from the laboratory of the University of Edinburgh, Woodhead has published an experimental study which seems to support in every detail the clinical returns already made. It is also worthy of remark that Woodhead's experiments seem to have been carried out with the greatest exactitude and care. On the other hand, I have found,[112 Sept.] in a series of studies, that an albuminous precipitate is always produced by this salt of mercury, and have proved that the tartaric acid solution of the bichloride of mercury, as originally proposed by Laplace, now of this city, is the only antiseptic preparation of mercury which will not act in this way.

Orthomethylacetanilide.—This drug (exalgine) is derived, as is antifebrin, from three methyls, occupying the positions of ortho, meta, and para. Dujardin-Beaumetz and Bardet[100 Mar. 26] found that in giving it to an animal it acts powerfully on the cerebro-spinal axis, and in a few minutes kills a rabbit in the dose 0.46 gramme (7¼ grains) to kilogramme (2 pounds). The symptoms are those of depression, with trembling and paralysis of the respiratory muscles. After a non-toxic dose the susceptibility to pain is diminished, but tactile susceptibility is intact. There is a progressive fall of temperature. The symptoms of poisoning are like those of antipyrin, but the drug acts more than does antipyrin on the heat-centres. There appears to be a law dominating all these drugs. Antiseptic power is possessed by the hydrates, as phenol, naphthol, etc. Antithermic properties are possessed by all the amidogenes, such as antifebrin, kairin, and thallin. Finally, the analgesics are best in those groups in which there is substituted for an atom of hydrogen a molecule of a paraffin radical, as methyl, as in antipyrin or phenacetin. The medical alkaloids of the aromatic series may readily substitute the vegetable alkaloids. Good examples of this are antipyrin, phenacetin, and antifebrin.

Milk.—Vasilieff[15 Nov.] has compared experimentally the assimilation of the nitrogenous constituents and of the fat of fresh and boiled milk. He kept several healthy persons on milk-diet for two periods of three days each, the milk given during one period being fresh, and that given during the other period being boiled. The results obtained showed that the assimilation both of nitrogen and of fat was less with boiled than with fresh milk.

Nitranilines.—The lethal dose of orthonitraniline is about 0.3 gramme (4½ grains) to the kilo (2 pounds) of animal. It slows the pulse by stimulating the peripheral vagi, and produces methæmoglobin in the blood. The action on the nervous system consists chiefly in an effect on the sensory side of the cord, but probably depends on the changes in the blood, and is slight and indirect. In large amount the drug is a powerful cardiac depressant. The sneezing produced by it when given by the stomach is the most curious symptom produced. Metanitraniline also stimulates the peripheral vagi, thereby slowing the pulse. The nervous effects are very feeble and depend upon the changes in the blood, namely, the development of methæmoglobin, all the symptoms being those of aniline poisoning. Paranitraniline is by far the most poisonous member of the group, and acts like the other members in a stimulating manner on the peripheral vagi. The lethal dose of it is 0.04 gramme (⅗ grain) to the kilo (2 pounds), by the jugular vein (Gibbs and Hare).

Nitrophenols.—The lethal doses of the nitrophenols in the dog are as follow: Orthonitrophenol produces death only when 0.1 gramme (1½ grains) is given for each kilo (2 pounds). Metanitrophenol, when given in the dose of a little more than 0.1 gramme (1½ grains) to each kilo (2 pounds). To every 3 kilos (6½ pounds) it will not kill. Paranitrophenol produces death when as much as 0.01 gramme (⅙ grain) to the kilo, is given by the jugular. The toxicity of these compounds is therefore as follows: para the most poisonous; meta the next; ortho the least poisonous. All the nitrophenols produce death by paralyzing the heart, and not by a respiratory action. They have very little effect over bodily heat, even in fever, the meta compound seeming to be the most powerful in this action. Curiously enough, the ortho and meta compounds stimulate the vagus nerves, while the para appears to depress them. On the nervous system their action is probably indirect, and is certainly very slight indeed. It has been noted that every animal killed by the use of the nitrophenols, or after the injection of a less than lethal dose, putrefies rapidly, becoming intensely swollen, while other animals killed by other means, and lying in the same vault, suffer no change (Gibbs and Hare).

Nitrobenzoic Acid.—Orthonitrobenzoic acid, when injected into the jugular vein of the dog, or when given by the stomach, in the dose of 1 gramme (15 grains) to every 4 or 5 kilos (8 to 11 pounds), seems to have very little, if any, influence over the animal free to run about, only a very slight relaxation of the general system being evidenced by a desire to keep quiet. That this tendency to be quiet and still is rather the result of the operation of opening the jugular vein, or forcing the drug into the stomach, is proved by the fact that the animal walks without difficulty and responds to caresses. It is to be noted, too, that the symptoms of depression, such as they are, are in part due to the use of a saturated solution of "sodium carbonate" as a solvent of the drug. That such a solvent is in no way injurious to the compound itself is well known, as the salts of the blood change all such acids into sodium salts as soon as they enter the circulation. The bodily temperature remains unaffected. If orthonitrobenzoic acid be injected by the jugular vein in the same dose as just mentioned,—1 gramme (15 grains) to every 4 or 5 kilos (8 to 11 pounds),—there are no changes of note in the arterial pressure or pulse-rate, even though the solution need not be concentrated and rapidly injected. Given to the frog hypodermically it seems equally innocuous, and we therefore have reached the conclusion that this compound is a substance possessing almost no influence over the body in ordinary amounts. *Metanitrobenzoic Acid.*—If this compound be injected into the jugular vein or stomach of an animal free to move about, in the dose of 0.25 gramme (4 grains) to 1 gramme (15 grains) to every 7 kilos (15 pounds), no more symptoms ensue than follow the use of the preceding salt. Correspondingly, we find that the circulatory apparatus remains unaffected, and that both the pulse-rate and arterial pressure are undisturbed; and it is therefore almost inert physiologically in the doses named. *Paranitrobenzoic acid* has also an equally feeble influence, and the entire group seems to be alike in its harmlessness (Gibbs and Hare).

Ozone, the Effect of, on Guaiacum Resin.—The ozone used by Kowalewsky,[365 No. 8] of Kazan, was obtained by passing a current of atmospheric air from a gasometer through a drying apparatus with concentrated sulphuric acid, and then through von Babo's apparatus, from whence it was driven by a Ruhmkorff inductor with two or three large Bunsen elements. 1. If a sheet of blotting-paper moistened with recently-prepared guaiacum tincture is hung in umbrella-form at some distance in front of the opening of the von Babo tube, the effect of the ozone is noticed on the paper in one or two minutes in a stain of remarkable color and shape. The latter resembles that of a comet, the nucleus being opposite to the opening of the tube, and the tail spreading downward. This proves that ozone is heavier than atmospheric air. The paper above the opening of the tube is but slightly discolored. Immediately opposite the opening the "nucleus" appears a yellow disk, surrounded by a bluish-green ring, beyond which there is a space of ovoid shape of greenish or reddish discoloration, lying chiefly on the under side of the ring. This "field" is bounded by a blue band, narrow at the top, but becoming broader on both sides the lower it descends. Beyond this, again, is a similarly-shaped band of a pink color. This coloring proves that ozone produces with guaiacum-resin not only a blue oxidation product, but a series of colored products which remain on the paper for varying long or short periods. 2. The process of the formation of the colored figure on the paper, on being examined, shows that the different colors do not appear simultaneously, but in a certain succession. Thus, first, there is a pale greenish discoloration in the form of a comet. Then, opposite to the opening of the tube, a pink patch of color appears, which retreats toward the periphery, especially on the under side, to make place for the blue in the middle. The blue again retreats to the periphery, to be lost opposite the opening of the tube. Thus, the blue represents a certain stage of the oxidation of the resin intermediate between the different colored and more or less oxidized products. 3. Perfectly dry guaiacum-paper cannot be colored by ozone, but if a portion of the paper be moistened with distilled water, that portion will be colored. Hence, to obtain the above-named results, guaiacum-paper must be used in which there remains a little of the alcohol, and with it water. What it is in the experiment it is difficult to say. Possibly a molecule of O_3 is decomposed into O_2 and O, and this active O in a nascent state acts upon the resin. 4. If perfectly dry guaiacum-paper be exposed to the influence of ozone for one or two minutes, and be then removed from the apparatus and moistened with distilled water, it takes the blue color and retains this power even if the moistening is delayed for a quarter of an hour or more after the removal. On the other hand, distilled water, through which ozone has been conducted for several hours (two and a half hours with 10 cubic centimetres H_2O), has no effect on dry, non-ozonized guaiacum-paper. These experiments show, firstly, that ozone is condensed and caught up by finely-distributed resin, but not by water; and, secondly, that condensation alone is not sufficient to oxidize the finely-distributed guaiacum-resin. 5. If moist guaiacum-paper be sprinkled with old oil of turpentine, the places thus sprinkled smoke in front of the ozone apparatus, but do not color. As ozone passed through turpentine produces only a vapor, at the same time losing its specific odor, and does not color moistened guaiacum-paper held before it, we must conclude that turpentine takes up ozone.

Paraldehyde.—During the past year Gordon$^{2}_{Mar.}$, has carried out a series of experiments upon the action of paraldehyde, studying its pharmacology very thoroughly. In the beginning of his paper he points out that the drug is largely given out by the lungs, being readily detected in the breath six or eight hours after its ingestion. The same odor may also be recognized in the urine three or four hours after a dose. The methods employed for the treatment of the urine and its constituents for the drug were as follow: Six boys were selected for the purpose of the experiments; they had suffered from a slight surgical affection, but had quite recovered at the time when the observations began. One boy was under observation at a time. Three of the boys yielded results sufficiently complete to allow of their publication; the other three, from various causes, failed to complete the experiments. Each boy during the period of observation was supplied with an ordinary mixed diet, such as he preferred and was in the habit of taking, and this selected diet was continued during the whole time of the experiments, no extras being allowed. The solids of the diets were carefully weighed and the fluids accurately measured. He was kept in bed when under the influence of the drug; at other times he was allowed moderate exercise in the wards of the hospital (Aberdeen Sick Children's) where the observations were made. The total quantity of urine was carefully collected; that which was excreted between the hours of 9 A.M. and 9 P.M. was called "day urine," and that which was passed between the hours of 9 P.M. and 9 A.M. was known as "night urine." The measurement of each quantity of urine is given in cubic centimetres; its specific gravity is noted; so also is its reaction upon litmus-paper, and the appearance and odor of the quantity examined. For the estimation of the urea Russell and West's apparatus was employed. This process consists in using a freshly-prepared solution of sodium hypobromate to decompose the urea, and measuring the nitrogen liberated in the decomposition. The chlorides were ascertained by volumetric analysis. A standard solution of mercuric nitrate was used, the working strength being 1 cubic centimetre (15 minims) of solution 0.01 gramme (⅙ grain) NaCl. In most of the estimations, both of the urea and the chlorides, duplicate observations were made for the purpose of control. The estimations of the "day" and "night" urine were carefully made, and recorded in cubic centimetres. The reaction to litmus-paper was observed at the time of the excretion, and the odor noted at the period of passing. The boys being healthy and good sleepers, and, as one object of the experiments was to observe what effect paraldehyde had as a hypnotic in ordinary health, it was thought best to give the dose in the morning about 9 o'clock. The dose was always administered well mixed and diluted in water. The temperature, pulse, and respirations were taken on the days of the administration of the drug, immediately before the dose, half an hour after the dose, and also two hours later. The state of the skin was observed, as was also the behavior of the subject as regarded sleep, and the effect of the drug on appetite and digestion. Some days before the first dose was given the subject was put on his regulated diet, the urine collected and measured, its reaction, appearance, and odor noted, and its urea and chlorides estimated; and, as soon as a steady, or an approximation to a steady, condition of the constituents of urine was obtained, the dose of the medicine was given. The morning dose was continued in the first two recorded cases for three consecutive mornings; then followed a period of three days' freedom from the paraldehyde; this period was again succeeded by another three days' administration of the drug in an increased dose; then the three days' rest of freedom took place; and so on till the experiment was completed. The only difference in Case III was that the periods of administration and exemption were at intervals of two days. In order to facilitate the understanding of the methods followed and the results obtained, Gordon drew up a daily journal of each case, and furnished charts showing the amounts of the excretions. In the three cases the diet was quite the same in the amounts of its solid and liquid ingredients, and was as follows:—

		Solids.	Fluids.
Breakfast	Porridge .	232 0 grammes (7½ ℥)	
	Bread . .	43.6 “ (1⅜ ℥)	
	Milk . .	. . . .	365. cubic centimetres (12⅓ f℥)
Dinner. .	Soup . .	. . . .	238. “ “ (8 f℥)
	Bread . .	43.6 grammes (1⅜ ℥)	
	Beef . .	73.0 “ (2⅜ ℥)	
	Potatoes .	43.6 “ (1⅜ ℥)	
Supper. .	Milk . .	. . . .	365. cubic centimetres (12⅓ f℥)
	Bread . .	87.0 grammes (2¾ ℥)	
	Egg . .	44.0 “ (1⅜ ℥)	
	Water . .	. . . .	300. cubic centimetres (10⅛ f℥)
Total		566.6 grammes (18¼ ℥)	1268. cubic centimetres (42⅞ f℥)

DAILY JOURNAL OF CASE III (J. W., AGED 10 YEARS).

DATE.	Paraldehyde Dosage.	Urine Passed During 24 Hours.	Appearance.	Odor of Paraldehyde.	Specific Gravity.	Urea.	Chlorides.	Pulse-respirations.					
1888		c.c.				gms.	gms.						
May 12	None	1560	Normal	None	1028	6.2	6.4						
“ 13	“	1070	“	“	1018	4.7	7.2						
“ 14	♏x	1280	Trace of urates	“	1022	7.8	8.9	80	92	90	24	24	24
“ 15	“	1370	Normal	“	1026	7.0	9.0	80	90	84	24	20	24
“ 16	None	1420	Urates	“	1022	8.0	11.0						
“ 17	“	770	Uric acid	“	1024	6.0	5.2						
“ 18	♏xx	1030	Normal	“	1024	8.4	7.2	92	86	90	24	22	20
“ 19	“	1070	Uric acid	“	1018	6.8	8.5	80	80	76	24	20	24
“ 20	None	1440	Normal	“	1020	8.4	11.9						
“ 21	“	1080	“	“	1018	7.0	7.6						
“ 22	♏xl	1560	Uric acid	Slight	1020	6.5	6.4	92	80	72	20	24	20
“ 23	“	1230	Normal	“	1020	5.6	7.4	92	72	84	24	24	20
“ 24	None	1445	“	None	1018	5.4	9.8						
“ 25	“	1220	Urates	“	1017	2.6	8.9						
“ 26	♏lx	1270	Normal	Marked	1018	3.9	8.1	90	76	80	24	20	19
“ 27	“	1100	“	“	1018	6.4	6.8	80	72	84	24	20	20
“ 28	None	1350	“	“	1026	5.0	8.7						
“ 29	“	1450	“	“	1022	6.0	8.0						
“ 30	♏lxxx	1500	“	Marked	1018	6.5	13.0	88	76	88	24	20	20
“ 31	“	1170	“	Very marked	1016	5.5	8.0	84	80	92	24	20	21
June 1	None	910	“	None	1024	3.4	7.4						
“ 2	“	1180	“	“	1022	4.5	7.4						

Reaction of urine acid throughout the experiment. Temperature normal.

This case is typical of the others. In all the chief features of investigation the other two cases showed similar results.

The conclusions which are to be drawn from the three cases are as follow: That there is no definite relation in respect to increase or decrease of the quantity of chlorides in the urine during the administration of paraldehyde in the three cases named. In regard to the quantity of urea, it was found that the drug markedly increased the elimination of this substance, the increase amounting to 8.1 grammes. He found that there is always a marked increase in the watery constituents of the urine following the administration of the drug. This observer also noted that sometimes it was decreased and sometimes increased, but, as his experiments were only three in number, they cannot be regarded as conclusive. Upon blood-pressure and respiration, he found that in cats and rabbits small doses produce no fall of arterial pressure provided that the absorption is slow, as from a hypodermic injection. If a large dose is given a considerable fall takes place, and this fall is always secondary to a diminished respiration which is produced by the drug. Paraldehyde, when injected intra-venously, kills the animal almost at once by depression of the heart. The respirations are slow at first and finally cease before the pulsations of the heart. It was found, however, that the drug had to be given in as large doses as 2 grammes (30 grains) to a cat to produce these results. Upon reflex action it was found that paraldehyde exercised a very distinct depressant effect, which is probably largely due to the action which Gordon found was exerted upon the motor nerves. Upon the muscle paraldehyde quickly abolishes the so-called tetanic curve, and the interesting observation was also made that a curarized muscle gave a greater response to electrical stimulus when under the influence of paraldehyde than did a non-curarized muscle.

Pyrogenine.—Roussy,[6 Mar.3] a pupil of Hayem, has discovered a new substance having the most remarkable pyretic power, and found it to act constantly in four hundred experiments. Unfortunately, the investigator so far keeps the method of obtaining this poison to himself, and it is therefore only worthy of a passing mention.

Salamandre Terreste.—Phisalix and Langlois[152 Sept.28; 8 Sept.5] have studied the effects of this venom and its alkaloid, having used in their researches the hydrochlorate of salamandrine. Using the dog in their experiments, they have reached the following conclusions: On the nervous system, salamandrine stimulates the cerebro-spinal system, acting upon the cortex cerebri, either upon the cells of the cortex, or of the bulb, or of the medullary cells. The bodily temperature is rapidly raised as high as 43° C. (109.4° F.) by a lethal dose, probably owing to the convulsions which are present. This is proved, according to these investigators, by the fact that no rise occurs in curarized dogs (?). The respirations are at first dyspnœic, then rapid. Death is due to cramp-asphyxia, and it was proved that with artificial respiration animals stood even larger doses of the poison without dying. On the circulation, it augments the arterial pressure, and first diminishes, then accelerates, the heart-beat. If the subject is feeble, with a feeble and soft pulse, the hydrochlorate of salamandrine increases cardiac activity, arterial pressure, and the force of the heart. At the autopsy the viscera are found to be congested, the meninges injected and covered by hæmorrhagic spots. Whether the poison is injected intravenously or not, the effects are the same. The minimum fatal dose of the alkaloid for the dog is 1 milligramme ($\frac{1}{64}$ grain) to every kilogramme (2 pounds) of the animal's weight, when given intravenously; when given by the mouth, it is 8 to 10 milligrammes ($\frac{1}{8}$ to $\frac{1}{6}$ grain). For the mouse the lethal dose is $\frac{1}{10}$ milligramme ($\frac{1}{640}$ grain). Five to 10 milligrammes, given hypodermically, is equal to 1 milligramme by the intra-venous injection.

Salicylic Acid.—Chopin[67, Feb.15] reaches the following conclusions in regard to the elimination of this acid: 1. Salicylic acid increases the quantity of urine when the kidney is healthy or has a chronic lesion. It is diminished in acute nephritis. 2. Salicylic acid increases urea, uric acid, and phosphoric acid. 3. The quantity of salicylic acid eliminated is 80 to 100 per cent. The elimination of the acid when the kidney is diseased is as follows: The time when the acid appears in the urine is retarded and the period of its elimination is always increased. The total amount irrecoverable from the urine is less by 10 to 30 per cent. of the quantity found in health. Salicylic acid is eliminated chiefly unchanged, or as salicine and salicyluric acid. Salicylic acid increases the amount of albumen in the urine.

Sapotoxin, Senegin, Cyclamin.—In Kobert's pharmacological laboratory in Dorpat, Pachorukow[80, Dec.15] has studied the action of sapotoxin, which is obtained from quillaja-bark, and in most respects closely resembles quillaic acid. He believes that the preparations from quillaja-bark act more favorably upon patients than equally strong preparations derived from senega, as their powers as expectorants are more varied; and they possess the additional advantage that they rarely produce vomiting and diarrhœa, which derivatives from senega often do. In regard to senega, Attlass arrives at the conclusion that it contains two glucosides similar to those obtained from quillaja-bark, but that the latter possesses about five times the amount found in senega. The practical deduction to be drawn from this is that as quillaja-bark is ten times cheaper than senega, the active principle thereof must be fifty times cheaper. Again, it has been found by this investigator that the percentage of glucosides in quillaja-bark is tolerably constant, and the taste of the decoction less disagreeable than is that of senega. Another student of Kobert's, Tufanow, has studied the principle of cyclamin and concludes that it is therapeutically of little value owing to its very poisonous properties, which far exceed those of the other principles named, without possessing any greater power for good.

Scillitin. — Montefusco,[757] of Naples, collaborator, has reached the following conclusions: Scillitin has no diuretic properties, but rather decreases the quantity of urine secreted and the urea which it contains in a manner which is directly opposed to an action naturally due to a true active principle of squill. Taking it all in all, scillitin diminishes the force of the circulation and depresses the blood-pressure. Its action is exercised through the extrinsic cardiac nerves, and the vasomotor centre is not influenced to produce the fall of temperature. The frequency and force of the respiration is diminished by an injection of scillitin. The influence of the drug on sensibility and mobility amounts to nothing.

Snake-poison.—In an interesting and remarkably thorough study, Feoktistow[1011] has studied the effects of vipera ammodytes, vipera berus, and crotalus durissus in Kobert's laboratory in Dorpat, with the following results: Only the lowest forms of animal life enjoy immunity from snake-poison, but it ends with the molluscs; 1 cubic millimetre (1½ minims) of a 2-per-cent. solution injected into the heart of anodonta cygnea (duck-shell) caused an immediate arrest of pulsation. Crustacea also were quickly affected; ½ cubic centimetre (8 to 16 minims) of the same solution injected under the shell at the tail end of a cray-fish produced paralysis of the heart and of the whole muscular system; and the same effect, together with labored respiration, was observed in fish. Frogs showed, first, paresis of the hind-legs, and then general motor paralysis with arrest of respiration and circulation. In mammals the symptoms were almost uniform with those observed from the poison of the viperina in man, viz., locally, extravasations of serum and blood into the cellular and muscular tissues; generally, dyspnœa and paralysis, occasionally ushered in by tonic and clonic convulsions, and accompanied by blood-stained discharges or hæmorrhages from bowels, lungs, nose, and bladder; finally, death by asphyxia and simultaneous heart paralysis. Passing from these general effects, the author traces the special ones on special organs and their functions as follows: paralysis of central origin, motor reflex action, sometimes increased at first, but lost with advent of paralysis. The latter, commencing in the lowest part of the spinal cord, ascends, involving centre after centre. With regard to the effect of strychnine, it was found that frogs resisted the effects of the drug when under the influence of snake-poison, and that the latter arrested within five minutes tetanic convulsions primarily produced by it. From the fact that barium chloride does not cause convulsions in snake-poisoned animals as it does in healthy ones, the author conjectures that snake-poison also paralyzes the gray substance covering the hemispheres, to which barium chloride is an irritant poison. *Action on Peripheral Nerves.*—The motor nerves are not affected, for faradization of nerves of paralyzed extremities produces muscular contraction. With regard to the sensory nerves his experiments were not conclusive, but he found that sensation was lost with the advent of the paralysis. *Action on Muscles.*—Induction currents producing contraction, he believes that snake-poison is not a muscle-poison. *Action on Pupil.*—Invariably paralysis, excessive dilation, with complete insensibility to light. *Action on the Heart.*—Paralysis, preceded by a short period of irritation and simultaneously with paralysis of the respiratory centres. By a series of most ingenious experiments the author proves that the paralysis proceeds both from central and local centres, those of the vagi and the intra-cardial motor ganglia, and that the heart action stops in diastole or semi-diastole. *Action on Blood-pressure.*—On this point experiments are also most interesting and ingenious. The author traces the immense and sudden fall to paralysis of the splanchnic nerves regulating and controlling the portal circulation; the blood rushes into the relaxed abdominal vessels, causing immense engorgement and draining the rest of the body. Of drugs raising the blood-pressure in snake-bite, ammonia was found most effective, and the beneficial effects of it in light cases of poisoning are thus explained, but in severe ones it is apt to increase the hæmorrhagic process. Transfusion raised the blood-pressure only as long as it lasted, the blood immediately after rushing into the abdomen, and the pressure sinking as low as before. In one of these experiments the author, whilst injecting defibrinated blood into the jugular vein, allowed a corresponding quantity to flow out of the crural artery until five times as much as the natural blood-mass of the animal had passed through it, and not a drop of the original blood could have been left. The result was *nil*, neither the blood-pressure being permanently raised, nor the general poisoning symptoms changed. *Action on Respiration.*—Invariably dyspnœa, asphyxia, and finally complete paralysis of respiratory nerve-centres occurred. Very large doses of the poison simultaneously paralyze respiration, heart, and the vasomotor nerves, the blood-pressure at once sinking to zero. *Action on the Blood.*—In a 2-per-cent. solution of the poison the stroma of the corpuscles is dissolved and the hæmoglobin separated from them, but no such effect is perceptible in the blood of a poisoned animal. It seems, however, to take place locally, where the poison is injected and in a concentrated form comes in contact with the blood. The author denies the disintegration of the corpuscles observed by Mitchell, Halford, and others, and ascribes the dark, fluid condition of the blood merely to asphyxia, and not to the corpuscles having lost the power of taking up oxygen, or being prevented from absorbing it by the dilation of pulmonary capillaries. As persons poisoned do not die from asphyxia, yet their blood is both dark, liquid, and undoubtedly shows broken corpuscles under the microscope, this discrepancy calls for further investigation. *Action on Urine.*—There are frequently large quantities of red and white corpuscles, but neither albumen nor sugar. The urine of poisoned animals is very poisonous to other animals by intra-venous injection. *Local Action on the Place of Injection or Bite and its Neighborhood.*—Immediately on the poison coming in contact with the ends of the vasomotor nerves, paralysis of the latter and the small ganglia interposed in their course takes place, followed quickly by extravasations. The latter are only exceptionally due to rupture of capillaries, but blood-corpuscles penetrate vessels by diapedesis. The author fails to explain this process, but points out that changes in the blood-vessels and the circulation consequent on paralysis of vasomotor nerves, as well as the action of certain drugs on the latter, are calling for further study and investigations.

Sodium, the Fluoride of.—Hewelke, $^{520}_{\text{No. 12, p. 240}}$ of Warsaw, publishes a preliminary communication on his experimental researches carried out in L. I. Tumas's laboratory, in order to study the biological action of fluoride of sodium (NaFl). The experiments are divided into three groups, one of which refers to the antifermentative properties of the salt, another to the parasiticide powers, and the third to its physiological action on the animal system. The outcome, briefly given, is as follows:—1. A 1 to from 100 to 350 solution of the fluoride of sodium inhibits altogethor the development and growth of the yeast-fungus. The fermentation is markedly retarded or arrested even by a 1 to from 600 to 2000 solution. An inhibitory influence of the salt may be still noticed, even when the dilution oscillates between 1 to 3000 and 1 to 8000. The effects become *nil* only when the proportion sinks down to 1 to 16,000. 2. The fluoride manifests a similarly powerful inhibitory action in regard to alkaline fermentation of the urine. While under normal conditions the urine passes into decomposition in four or five days, a urine mixed with the salt in proportion of 1 to 1300 preserves its acid reaction for fourteen or fifteen days, though the fluid becomes turbid about the seventh day. When the proportion amounts to 1 to 650 or 1 to 100, the urine remains unchanged for twenty-one and thirty days, respectively. The proportion of urea which in a normal urine sinks down to half the initial amount in a fortnight, in a fluoride (1 to 150) urine is found to be unaltered, even after the lapse of three weeks. 3. The salt possesses a similarly energetic inhibitory action in regard to putrefaction. When mixed with the fluoride in the proportion of 1 to 80 or 1 to 170, the blood remains sweet for weeks, its decomposition being distinctly delayed, even when dilution amounts to 1 to 640. The parasiticide action was studied on pure cultures of certain non-pathogenic (bacillus fluorescens prodigiosus) and pathogenic microbes (typhoid bacillus, bacillus of anthrax, Finkler-Prior rod, bacillus fœtidus, pneumococcus, streptococcus pyogenes, and staphylococcus pyogenes aureus). The drug was added in varying amounts to such nutrient media as broth, peptone gelatin, and peptone gelatin agar-agar. 4. When present in the proportion of 1 to 150 or 1 to 200, the salt totally prevents the growth of every one of these mycotic species. The effects are still pronounced, even in the presence of 1 part of NaFl in 300 of the medium, and may be still discernible even when the proportion is at 1 to 300. 5. In general, the fluoride seems to act on pathogenic microbes more powerfully than on non-pathogenic microbes. Thus, the growth of the staphylococcus pyogenes aureus and bacillus of anthrax is prevented altogether, even when the medium contains only 1 of the salt to 300. The physiological action on the animal system was studied in dogs and rabbits. The fluoride, in the shape of a 2- or 2.5-per-cent. aqueous solution, was either injected under the skin or into veins, or introduced into the stomach by means of a gastric tube. 6. When administered hypodermically in small doses, 0.02 or 0.03 gramme (⅓ or ½ grain), the drug does not give rise to any general phenomena beyond an occasional slight and short-lasting tremor of the whole body. The injection, however, always causes an intense local pain, and (in spite of all antiseptic precautions) is followed on the next day by strong local congestion and œdematous swelling; while about the third or fourth day a rather large, though superficial, slough falls off, to leave an ulcerating surface. 7. When introduced into the stomach, moderate doses, 0.04 to 0.05 gramme (⅗ to ¾ grain) per each kilogramme of the dog's weight give rise to salivation, vomiting, general excitement, and tremor, followed by prostration, the symptoms passing away in the course of two or three hours. Larger doses, varying from 0.09 to 0.1 gramme (1⅓ to 1½ grains) per each kilogramme of the animal's weight cause (besides salivation and vomiting) diarrhœa, accompanied by violent tenesmus and intestinal hæmorrhage. The respiration and pulse are at first accelerated, but subsequently retarded, and finally stop altogether. Of nervous symptoms, there are observed general tremor, followed by extreme prostration, decrease of reflexes, and in one or one and one-half hours palsy of the hind-limbs. In a couple of hours the animal dies from exhaustion. 8. At the necropsy there are found numberless ecchymoses and extravasations in the stomach, especially about the pyloric region, in the duodenum, jejunum, and rectum, and extreme contraction of the heart. 9. Intra-venous injections in similar doses are followed by the same train of symptoms.

Sulphonal.—Several quite interesting researches upon this comparatively new hypnotic have been carried out during the past year. Smith,[15 Jan.] of London, has studied its action on the activity of tissue-change, and has also attempted to determine the changes in the drug during its passage through the body. In regard to the first question he found, by experimenting upon a powerful, healthy dog, weighing 17 kilogrammes (35 pounds), which was fed upon 1 pound (453 grammes) of dog-biscuit and 1 litre (quart) of water daily, that the amount of urea during the administration of sulphonal is a little greater than that eliminated during the period when no drug is given. He also found that the urine is slightly increased in amount under the influence of the drug. The changes were, however, so very slight that he reaches the conclusion that moderate doses of sulphonal do not effect the arrest of nitrogenous tissues. In regard to the second question Smith quotes the results of Kast, namely, that sulphonal does not pass into the urine as such, but in the form of a sulphuretted organic compound. Smith therefore directed his attention to the endeavor of finding out whether the entire amount of the drug ingested is changed or not. Without taking up space with a full consideration of his method of experimentation, we find that his conclusions may be summed up in the following language: In moderate doses the drug is completely changed during the passage through the body into a sulphuretted organic substance. The elimination of sulphuric acid is not increased by taking sulphonal. In the publication quoted Dr. Smith does not give us the exact nature of the substance derived from sulphonal, but promises to inform us concerning it in a later contribution.

Another paper upon the physiological action of sulphonal has been published by William F. Shick,[242 Jan.] of Easton, Pa., who has found, after a series of experiments, first, that sulphonal by the stomach acts very slowly on account of its insolubility; but that subcutaneously in warm solution it is much more active. The drug was also found to produce a general relaxation of the muscles, and a staggering gait after its hypnotic power had passed by. The spectroscope failed to show any changes in the blood. The motor nerves are not affected. Shick believes that the action of the drug is expended upon the higher nerve-centres. He also found a decreased reflex activity, and believes this lessening to be due to stimulus of Setschenow's reflex inhibitory centre. On the circulation the drug was found to have but little power. When sent directly into the blood there is a slight decrease in arterial pressure, followed very soon after by an increase. Upon the respiration the drug is found to act as a depressant.

Sulphuric Acid.—Sher,[6] Dec. '88 of St. Petersburg, in an inaugural thesis, has published a research on the relation between the total amount of sulphuric acid excreted by the kidneys and that portion of it which is found in the urine in the form of a compound ether under conditions of rest and work. That is to say, part of the sulphuric acid found in the urine exists in combination with such substances as indoxyl, scatoxyl, pyrocatechin, phenol, kresol, etc. In the research of Sher he estimated the total amount of free sulphuric acid, and that existing in the compound forms, in the urine of 26 persons under circumstances of both rest and work, keeping the results obtained from the urine passed at night from those obtained from that passed during the day. As a result of these studies, he found that the relation between the total free acid and that combined with organic substances vary very greatly with the work performed by the individual, the total amount of free sulphuric acid passed in 24 hours without work being 2.75 grammes (41 grains), or 8.2 times as much as was passed in the state of combination, while with work the total quantity of the free acid was 2.97 grammes (45 grains), or 9.2 times the amount of the acid in combination. It, therefore, appears that the ratio between the two increases with work. Where the work was very excessive and the physical powers were exhausted, it was found that the ratio was decreased. As one would naturally suppose, more sulphuric acid was found to be excreted during the day-time than was passed at night.

Intra-vascular Coagulation of the Blood by Certain Drugs.—The well-known fact that the blood of animals of different species, when injected into the veins, may produce a fatal thrombus or fatal hæmoglobinuria, has led Silbermann[319] Jan. '89 to carry out a series of interesting experiments, in order to determine whether certain substances which frequently produce hæmoglobinuria do not also sometimes cause coagulation of the blood in the vessels themselves.

It is evident that the determination of this question is of practical value, in that it opens up an explanation of the occurrence of thrombus with the train of morbid symptoms in various forms of poisoning. Silbermann found that sodium chloride, glycerin, toluylendiamin, and pyrogallic acid produce these thrombi, and also that animals which receive the blood of those dogs poisoned with sodium likewise die as the result of general thrombosis. In the post-mortem examinations the thrombi were naturally found most frequently in the capillaries. The experimenter injected indigo-carmine into the veins, and then, seeing that certain parts of different organs were not discolored by this pigment, recognized the thrombi; in other words, the formation of the thrombi in certain vessels prevented the parts supplied by these vessels from being colored. Not content with the interesting results reached by this investigation, Silbermann carried his study still further, and examined animals which had been poisoned by arsenic and phosphorus. While his results in this direction do not seem to have been so positive as to the arsenic and phosphorus, he raises the interesting question as to whether many of the symptoms occurring after the ingestions of such toxic agents are not due to the formation of intra-vascular clots.

The Influence of Warm Baths and Sweating upon the Elimination of Drugs.—In an inaugural thesis by A. Golberg, of St. Petersburg,$^{35}_{\text{Mar.}14}$ the results are given of a research carried out by him in regard to the action of sweating upon the elimination of drugs, particular attention being paid to the iodide of potash, the salicylate of soda, and antipyrin. He finds that an increased action of the sweat-glands decreases the elimination of drugs by the urine. This, however, seems to be only a general rule, for under other circumstances the excretion of the drug by the kidneys was sometimes decreased. He is unable to give any explanation of this curious condition of affairs, and his attempts are only mentioned because they suggest an interesting subject for research.

Reduction of Bodily Temperature by Suggestion in Hypnosis.—Joseph Drzewiecki, of Warsaw, collaborator, sends an account of an interesting research carried out by Mares and Hellich$^{758}_{\text{No.}22}$ on the influence of suggestion upon the reduction of temperature in the hypnotic state. He says it is an old though as yet unexplained fact that the fakirs in India can voluntarily put themselves in a state of lethargy, with considerable reduction of bodily temperature. The observations of Dumontpallier, Binet, and Féré, and by Krafft-Ebing, have proved that the temperature may be raised or lowered by this means. The belief of Mares that hibernation in animals is a hypnotic sleep, with loss of sensibility to cold, induced Hellich to make experiments on persons in the psychological clinic at Prague. His studies were made with all possible care upon an intelligent and highly hysterical girl, aged 22 years. He found that twenty-four hours after the suggestion the external temperature of the body had fallen to 22 ° C. (71 ° F.), the temperature of the room being 20° C. (68° F.), while the internal bodily temperature was 34.5 ° C. (94 ° F.) after a few days. The weakness and swoons into which the girl fell prevented all further experiments, and by contrary suggestion the operator brought her back to consciousness and to a normal temperature. As Drzewiecki points out, this shows that we can act even on nervous functions independent of the will-power. He adds that he knows a young hysterical girl in whom menstruation can either be stopped or brought on by a hypnotic suggestion as often as once a week.

On the Action of Some Dietetic Means and Drugs on the Secretion of Pancreatic Juice.—Following the suggestion by Pavloff, D. Küvshinsky,[90] House-Physician to the Alexandrovsky Town Hospital, St. Petersburg, has carried out an important experimental inquiry into the function of the pancreas in healthy dogs with a permanent pancreatic fistula (established after Pavloff's method). The first group of these interesting researches was devoted to studying the course of the pancreatic secretion under normal conditions. The following main inferences may be drawn from the observations: 1. While presenting certain oscillations in regard to its quantity, the secretions never cease altogether (the minimum amount observed by the author being 1.4 cubic centimetres—20 drops—in half an hour). 2. The functions of the gland are quite distinctly influenced by ingestion of food, mental state, and sleep. 3. The secretion within twenty-four hours after taking food may be sketched thus: Very shortly after the meal the secretion gradually increases to reach its primary and highest maximum in the majority of cases; 9 out of 17 in about three-quarters of an hour; less frequently, in 6 in 17 instances, during the first half-hour; and only rarely, 2 in 17, in the course of the second hour. Having attained the maximal level, the secretion usually decreases more or less rapidly, the re-elevations occurring at about four-hour intervals, *i.e.*, at about the first, fifth, ninth, thirteenth, seventeenth, and twenty-first hour after a meal. Bernstein's "secondary maximum" is reached about the twelfth hour. 4. The quantity of the juice secreted, however, presents considerable (both hourly and daily) oscillations, not only in individual animals, but even in the same one on various days; and that in spite of all conditions being as equal as possible. 5. An average daily (twenty-four hours) quantity of the juice seems to be about 335 cubic centimetres (10 fluidounces) in a dog of 19 kilogrammes (40 pounds) in weight, receiving 300 grammes (10 ounces) of butchers' meat, 200 grammes (6½ ounces) of bread, and 300 grammes (10 ounces) of milk a day. 6. The secretion does not cease in animals deprived of food. Thus, in a dog kept twenty-four hours without any food, an hourly quantity of the juice, as determined on examination every half-hour, oscillated between 3.4 and 8.8 cubic centimetres (55 minims and 2 fluidrachms). A similar statement has been made by P. Vilijanin,[509 p.309,'87] of S. P. Botkin's clinic. According to his observations on dogs, on a third or fourth day of starvation, about 5 cubic centimetres (1¼ fluidrachms) of the juice is still secreted by the pancreas every fifteen or twenty minutes. 7. The secretion is most distinctly increased by mental stimuli, such as excitement or emotion, as the following unique experiments of Küvshinsky unmistakably prove: Having starved a dog for twenty-four hours, the author brought it into an excited state by exhibiting its usual meals and by mincing butchers' meat before the animal's eyes. The secretion, amounting to 1.1 or 1.4 cubic centimetres (17 or 22 minims) in ten minutes before the experiment in one animal, and to 3.8 cubic centimetres (1 fluidrachm) in an hour in another, rose by degrees to 5.2 cubic centimetres (1⅜ fluidrachms), or even 10.1 cubic centimetres (2½ fluidrachms), in the first ten minutes, to 29.8 cubic centimetres (1 fluidounce) in the first hour, to gradually decrease again on quieting the animal by removing the exciting agent from the room, and to increase on a repeated exhibition of the food later on. The results remained identical in every one of the experiments of the kind. As to the digestive power of the juice, it remains equally energetic, both during the animal's excitement and after its taking food. The "emotional" juice, however, contains only 3.5 per cent. of solid constituents, while in that secreted in the course of the first hour after the meal the proportion rises to 7.7 per cent. 8. During sleep the secretion decreases to a very considerable degree. Generally speaking, it commences to sink just on the animal's falling into slumber, to gradually decrease further as its sleep becomes deeper, and to gradually increase on its awakening. The diminution sets in the more rapidly the more fatigued the animal is; that is, the more rapidly it falls into a deep sleep. 9. Some of the daily oscillations are to be ascribed to variations in the animal's state, as, for example, cheerfulness, mental fatigue, drowsiness, excitement, a well-developed appetite, or fondness for eating in general and of various food-articles in particular. The latter fact justifies the corollary that in man a meal taken without appetite is utilized by his organism—at least, so far as the pancreatic functions are concerned—to a far less degree than an "appetizing" meal, the cause lying in a scantier secretion of the juice, owing to a less violent "dietetic excitement." The primary maximum secretion is probably dependent upon (*a*) a more or less intense mental excitement in the very beginning of the meal, (*b*) mechanical stimulation of the duodenal mucous membrane by food ingested, and (*c*) a more or less considerable rise of the intra-abdominal tension, as determined by the food-mass introduced, which presses out the juice already formed, both from the pancreatic cells and ducts. 10. A quite normal pancreatic juice in dogs possesses a very energetic digestive action. Given 10 cubic centimetres (2½ drachms) of the juice and 2 decigrammes (3 grains) of dried fibrin, at 37° to 39° C. (98.6° to 102.2° F.), digestion begins in from five to ten minutes and completely dissolves the fibrin in from fifteen to twenty minutes. Its reaction is always alkaline; its specific gravity, 1010 to 1015. On heating, the juice coagulates, giving a clot equal to three-fourths of the juice's volume. The proportion of solid constituents presents marked variations, of which those connected distinctly with taking food may be here noted. Thus, when equal to 3 per cent. in the first hour after a meal, the proportion gradually ascends to 6 per cent. after the tenth, and re-ascends to 3.5 per cent. after the twelfth hour. 11. The normal "secretory tension" in a dog's pancreas amounts to 280 millimetres of an aqueous or 21.4 of a mercurial column; that is, the tension is nearly as low as in a rabbit's pancreas (219 to 225 millimetres of H_2O). It is highly probable that the pressure is about as insignificant in man, too; hence, the supposition is fully justified that in human catarrhal jaundice the pancreatic juice ceases to find its way into the bowel, or, at all events, is oozing out of the gland in but very trifling quantities. The other part of Küvshinsky's work deals with the influence produced on the pancreatic secretion by alcohol, morphine, and cocaine. Alcohol (6 experiments) was invariably administered internally on an empty stomach, in the shape of an ordinary (40 per cent.) "table vodka" (aquavit), two tablespoonfuls at a time. The deductions may be condensed thus: 1. Vodka always causes a very marked increase in the pancreatic secretion, which commences about half an hour after the ingestion, lasts for about one and a half hours, and then disappears in the course of third hour; *e.g.*, in one case, an hourly amount of the juice, equal to 5 cubic centimetres ($1\frac{1}{4}$ drachms) before the experiment, rose to 20.25 cubic centimetres ($5\frac{1}{5}$ drachms) during the first, and to 22.9 cubic centimetres (6 drachms) during the second hour after the administration of vodka. 2. The juice excreted under those conditions has relatively low specific gravity (1010) as well as a low proportion of solids (2.9 per cent.), but, all the same, it presents a high digestive power (dissolves fibrin in twenty minutes, *cf.* sub. 10). 3. Taking into consideration the fact that diluted alcohol gives rise to an increased secretion of the pancreatic juice, as well as that of the gastric juice and saliva, an internal use of spirits before and during meals is fully justified physiologically, and must be resorted to in cases of anæmia, debility, during convalescence, etc. Hydrochlorate of morphium was introduced either under the skin (13 experiments) or into the stomach (1 experiment), the dose varying from $\frac{1}{12}$ to 1 grain (.005 to .065 gramme). 1. The alkaloid invariably strikingly inhibits, or even arrests altogether, the pancreatic secretion, and prevents the occurrence of an after-meal increase. (*Vide* sub. 3.) 2. The intensity and duration of the effects are, in rough outlines, parallel with the size of the doses administered, though any strict proportion between the two factors cannot be made out. An injection of $\frac{1}{10}$ of a grain (.006 gramme) produces a pronounced increase in the secretion in the short space of two minutes, and a complete arrest in half an hour. About the end of an hour the secretion re-appears, to gradually return to the normal condition in the course of the next hour. The dose of ⅕ of a grain (.013 gramme) inhibits the secretion completely in twenty minutes, the stoppage lasting for one and a half hours; ¼ of a grain (.016 gramme) arrests the secretion for three hours. As a rule, a complete inhibition of the salivary secretion takes place simultaneously. Hydrochlorate of cocaine (8 experiments) was employed hypodermically. 1. Like morphine, the drug develops invariably an inhibitory action on the pancreatic secretion, the effects being fairly pronounced, even after $\frac{1}{12}$ of a grain (.005 gramme), though there are observed considerable individual peculiarities in regard to intensity and duration of the phenomenon. 2. Still, speaking generally, the effects correspond to the size of doses administered. A 1-grain (.064 gramme)—$\frac{1}{20}$ of a grain (.003 gramme) per 1 kilo (2 pounds) of the animal's weight—dose decreases a half-hourly amount of the juice from 13.5 cubic centimetres (3¾ drachms) to 5.8 cubic centimetres (1½ drachms) during the first half hour, to 4.6 cubic centimetres (1¼ drachms) in the second, the minimum being reached in forty minutes after the injection. A 1½-grain (0.096 gramme) dose reduces the amount of the juice (to a half of that before the injection) in about ten minutes, and completely inhibits the secretion (for two minutes) in fourteen minutes. The effects, however, last for a far shorter period than in the case of morphine.

The Duodenal Juice of Man.—Tschlenoff,[214 Mar.16] of Berne, says that the perusal of Boas's[319 No.8] paper induced him to undertake a course of experiments, in which he obtained the duodenal juice after the plan given by this German author. The method consists (*a*) in a preparatory washing out of the patient's stomach with 1½ litres (3 pints) of a 1-per-cent. solution of soda; (*b*) introducing a gastric tube into the organ; and (*c*) a light massage of the epigastrium, in the direction from the right lobe of the liver toward the pylorus, in order to open the latter and to force out the duodenal contents into the stomach. The experiments were carried out by Tschlenoff in 7 patients suffering from atrophy of the gastric mucous membrane, with dilatation of the stomach or stenosis of the gullet about the cardia, etc. In 5 of the 7 the attempts proved successful; that is, the author succeeded in obtaining from 10 to 70 cubic centimetres (2½ drachms to 2⅓ fluidounces) of a fluid which possessed a high power of dissolving fibrin and transforming starch into erythrodextrine and dextrine. The fluid had either an alkaline reaction (in 3 cases), or a faintly acid one (in 2), and was either colorless (in 3) or greenish (in 2). We may conclude from Boas's and Tschlenoff's experiments: 1. That the duodenum contains a considerable amount of the pancreatic juice and bile, even while the patient is fasting. Boas says that in 20 persons he experimented upon he was able to extract from 18 to 200 cubic centimetres (4½ drachms to 6 fluidounces). 2. A greenish-tinted fluid, often found in empty stomachs of patients suffering from various gastric diseases, undoubtedly contains bile penetrating into the organ from the duodenum. 3. The enteric juice retains a high digestive power, even when the gastric juices lose their power entirely. This was also the case in 3 out of 5 patients of Tschlenoff. The latter circumstance possesses practical interest. The question naturally arises whether, in cases of atrophy of the gastric mucous membranes, it would not be more rational to prescribe a liberal mixed dietary, in the expectation that all kinds of food-ingredients, as proteids, starch, fats, etc., would be duly digested by the pancreatic juice? To assist the intestinal digestion the atrophic stomach might be "transformed into a kind of a duodenum; that is, the pancreatic ferments, with addition of some alkalies, might be administered." The internal administration of a 12- to 15-per-cent. pancreatic infusion, or of a good pancreatine, is successfully resorted to in cases of gastric atrophy by Reichmann, of Warsaw.[588 Oct. '88]

ELECTRO-THERAPEUTICS.

BY AMBROSE L. RANNEY, M.D.,

ASSISTED BY

GEORGE G. VAN SCHAICK. M.D.,

NEW YORK.

Electro-Cataphoresis.—Thomas Buzzard, $^{2}_{\text{Nov.16}}$ in speaking of the results of certain drugs administered through the skin by means of electricity, stated that he had used iodide of potassium in that way for the cure of labyrinthine deafness and lead palsy. Only small doses could be introduced through the skin. In syphilitic and other affections of the throat, and especially in chronic pharyngitis, it was very useful. Nodes and gummata in accessible situations seemed to yield readily to it, and this was equally true of tubercular ulcers in the later stages of syphilis, mucous patches, and papular syphilides. Amongst non-specific affections it served well in the treatment of indolent ulcer, lupus, and acne. Benefit might be also expected in bronchocele and exophthalmic goitre. The drug is conveyed directly to the part where its action is needed and where the disease is probably in a condition of maximum activity. The lesion, if due to errors of nutrition, would be benefited by the galvanic current as well as by the drug.

F. Petersen, in a paper read at the New York Academy of Medicine, $^{9}_{\text{Mar.3}}$ stated that he had tried electro-cataphoresis in a series of 100 patients by means of an apparatus devised by himself, which he exhibited. It was an instrument differing from and superior to that devised by Adamkiewicz. He related about 25 of the cases. The agents employed were cocaine and aconitia, and the method had been very successful in neuralgia and other painful affections. During the discussion, Landon Carter Gray stated that he had obtained bad results with the Adamkiewicz instrument. M. Allen Starr had been a witness to the relief afforded by Petersen in one case of locomotor ataxia. One objection against the method was the uncertainty of dosage. This, he thought, might be remedied in time by careful experimentation. The method was applicable for diagnostic purposes. By the use of cocaine it was possible to determine, in a case of *tic convulsif*, which one of the branches of the trigeminal was affected. It would also serve to tell whether pain was peripheral or hysterical in origin. Sachs had had no success with the Adamkiewicz instrument, and thought that the method would not give any certain differential means in the diagnosis between peripheral and hysterical pain, as the latter was apt to give way at any moment.

Sedative Effects of Electricity.—George H. Washburn[99 Oct.] demonstrates the sedative action of electricity in a report of 11 cases treated by this agent. They include several cases of neurasthenia, complicated with more or less hysteria; 1 case, which, being treated after Apostoli's method for multiple fibroid, goes to sleep during each application, and is very sleepy for thirty-six hours after; another case of sleeplessness was much relieved by galvanism to the spine applied every evening; 2 cases of vaginal hyperæsthesia were also cured. Other cases of headache, coccygeal neuralgia, and sciatica are also described as cured.

Suggestion in Electro-Therapy.—R. Friedländer,[75 June 15] comments upon the assertions made by Möbius that the effects of electricity are of a psychological kind, in which suggestion plays the most important part. Möbius also asserted that good results would be obtained chiefly in those cases in which hypnotic suggestion would prove equally valuable. Friedländer shows that such good results by suggestion have only been reached in functional neuroses, while organic diseases are not relieved. On the other hand, electro-therapy has gained its present position in the treatment of organic affections of the nervous system. In this class of cases it is often the only available remedy, while in the treatment of functional neuroses it frequently fails, thus controverting these statements of Möbius.

Depressing Effects of Galvanism.—The valuable experiments conducted by the late G. Griswold, of New York, are recalled editorially,[242 Sept.] the writer stating that his own experiments verified Griswold's deductions that galvanism was a depressant, and a dangerous one when applied in cases of collapse or shock. In dogs, when either aconite or chloroform narcosis was present, and a moderate current used,—one pole over the apex and the other over the course of the pneumogastric and phrenic in the neck,—

the heart ceased beating instantly, and respiration ceased as well. The writer is glad to see that this is sustained. Griswold's experiments are verified by H. A. Hare and Edward Martin.[1001] "The action of galvanism, under these circumstances, on the heart was most striking, for it was found that the only place where the positive pole could contract the diaphragm *also inhibited the heart.* If a current, by no means as strong as that frequently used in cases of suspended animation, produces such a profound effect upon the heart of a moderately anæsthetized dog, its effects upon a heart already overburdened by a congestion or depression would be disastrous. It would seem probable that in those cases where the use of electricity has been resorted to, the return to life has been the result of reflex stimulations rather than a direct effect on the phrenic nerves. On the contrary, the striking effect upon the heart, shown by tracings, suggests the thought that improper application of electricity may in the past have been an important factor in determining a fatal issue."

Polar Action.—Glatz, in a discussion before the Medical Society of Geneva[197, May 30] upon Joffé's paper on the polar action of electrical currents, stated that he found no appreciable difference between the actions of the poles in unipolar applications. In bipolar applications, clinical experience has shown him that the positive pole is the more sedative and calming in neuralgias. He places the positive pole at the seat of pain with a small electrode, while the negative is placed at a distance with a larger electrode. The current must be of medium intensity.

Motor Paralysis.—Dubois[214, Oct 1] comments upon the doubt which has lately arisen in the profession as to the usefulness of peripheral electrization in motor paralysis, The question is warranted whether faradization of muscles can be of use in a hemiplegia produced by an intra-cranial hæmorrhage. If the nerve-fibres are destroyed, the paralysis must be a permanent one; but, if only injured slightly, they may readily be restored. It is not certain, however, whether electricity can hasten the healing process. The same question can be asked as regards its value in certain spinal and peripheral troubles. The prognosis depends upon the severity and extent of the trouble.

The author himself had long been inclined toward these doubts, from a theoretical stand-point, but now believes that it is proper, at least, to give the patient the benefit of the doubt, and from long experience has become persuaded of the real value of this form of treatment in such cases. The enthusiasm which formerly prevailed was not justified, but we have still reason to feel encouraged. The author's reasons and conclusions are to the effect that: 1. In many cases of motor paralysis dependent upon organic lesions, in which the suspicion of a psychical paralysis cannot be entertained, the action of electricity may be shown at once and at each sitting. This has been observed in cases of rheumatic facial paralysis, especially in the median form of Erb's. 2. Even in cases in which the electrization produces no immediate results, systematic faradization hastens the healing process. The difference between cases which are and cases which are not treated by this means is sufficiently great to leave no doubt as to its real efficacy. Sahli, it may be mentioned, has also come around to these conclusions after a prolonged period of skepticism.

Petrina,$^{88}_{\text{Dec. 19, '88}}$ in an interesting article upon electro-diagnosis in paralysis, concludes: 1. That, in cerebral paralysis, central galvanism is indicated. This central treatment may be combined with advantage with a short peripheral galvanization and faradization of the paralyzed parts at each sitting. The anode is placed over the nucha, or over a plexus, and the cathode along the muscles. Faradization may be used with the brush, using for a few minutes and with great care a moderate strength of current. 2. That spinal paralysis should also by all means be treated centrally, the spinal cord being directly penetrated by the current in *loco morbi.* Stabile applications are made along the course of the nerve-current. The peripheral treatment, both centripetal and reflex, is carried out by means of. a labile galvanic current or with the faradic one.

Lymphatic Engorgement.—Mordhorst, of Wiesbaden,$^{84}_{\text{May 26}}$ argues that, as the origin of most chronic affections, whether traumatic or rheumatic, depends on a congestion of the lymphatics and the inflammatory changes in the connective tissues of the affected parts, our therapeutical indications consist in the liberation of these lymphatics from their abnormal contents, and in causing a re-absorption of the pathological deposits. The remedies commonly employed for this purpose are mineral baths, with or without douche, massage, and electricity. In recent slight cases the former are insufficient, and sometimes are effective in more severe cases. The two latter, however, are the most useful in connection with baths. The author's experience is that the simultaneous use of electricity and massage is even more efficacious. He employs a massage-electrode, consisting of elastic rollers of various sizes and shapes, which are provided with a curved handle, and which he considers superior to the hand for that purpose. A strong current is used. His conclusions are that this method has the following advantages over the separate use of massage and electricity: 1. The hyperæmia provoked by the massage is increased and prolonged by the simultaneous application of the constant current, and this without the bad effect of intense mechanical disturbance, as produced by prolonged and violent manual massage. 2. With the massage-electrode the re-absorbed pathological products found in the lymph are removed, together with the flow of the lymph-current from the seat of disease. 3. The prolonged hyperæmia of the skin aids in freezing the affected lymphatics and their periphery. These advantages, which are apparent from a theoretical standpoint, have also been justified by practical experience in 208 cases. These were chiefly in patients affected with chronic rheumatism, sciatica, neuralgia, migraine, etc. All these cases were benefited, while those not entirely cured were treated for too short a time.

Cutaneous and Venereal Diseases.—J. V. Shoemaker[121 oct] describes the uses of the various forms of electricity in diseases of the skin and in venereal diseases, stating that because of its powerful local and systemic effects it would, in any of its forms, be looked upon as an efficient remedy in affections of the integument, and clinical experience gives ample evidence that the assumption is true. Static electricity is valuable in many nervous disorders; hence, affections of the skin resulting from or accompanying such illness are often benefited by franklinism. Anæsthesia and hyperæsthesia are notably relieved by general roller electrization. Prurigo is also greatly benefited by static applications. Formication accompanying central nervous disease generally is held in abeyance by franklinic baths. As a general tonic we get splendid results in exhaustion accompanying nervous troubles, and the lividity of the skin then seen is dissipated by the acceleration of the dermic circulation under a series of short sparks. Neuralgias of the scalp and soles of the feet are sometimes benefited by franklinism after the failure of other electric treatment. Hypertrophies of the skin, such as corns, horns, callosities, scales, cicatrices, and the like, are often removed by the thorough application of sparks daily over the diseased surfaces. The tendency to repeated blind boils is often aborted by strong sparks, and acne marks, hard papules, sluggish lymphatic glands, and similar disorders are readily removed or largely benefited by drawing repeated sparks from the region affected. In eczema and psoriasis franklinism is of much service. Where great infiltration has taken place absorption is facilitated by franklinism and the obstructed local circulation is relieved from pressure by the removal of depositions. Much of the roughness of the skin in scrofulosis is remedied by thorough franklinism, whilst a general systemic tonic improvement accompanies the removal of the local trouble. In hyperidrosis of the feet or hands, thorough franklinism is extremely valuable, as it is also in the intolerable burning and itching of those parts in persons advanced in life. Several cases of ringworm have been checked in their development, and in at least two instances the painful lesion caused by the "guinea-worm" has been cured. Sycosis is sometimes relieved by franklinism, and the "scald-head" of infants is undoubtedly benefited through continued static treatment. It is also useful in the nervous twitching and spasm of the lips and corners of the mouth, and the copious flow of tears which occurs in the former in nervous or hysterical patients. As a general tonic to the skin or as a counter-irritant, franklinism is as reliable as galvanism or faradism. Galvanism is applied either generally or locally. It affects the nutrition of the skin and it relieves engorgement by increasing surface circulation. In chronic eczema and psoriasis no agent is of greater service than daily treatment with galvanism. The current is especially indicated where eczema is consequent on stomach or liver disorder, the positive pole being applied to the epigastrium and the negative to the affected parts of the skin. Mild currents only are needed. In erythema and erysipelas gentle galvanization will remove the stasis and reduce the swelling through the absorption of effusion beneath the cuticle. The lateral progress of erysipelas is frequently checked by galvanism applied around the affected localities, the anode being placed in the centre of the patch and the cathode moved slowly around its circumference. Not enough current to arouse muscular contraction should be given. A good meter should be used and the full battery should be employed, enough resistance being introduced by the rheostat to bring the current down to a definite strength. This equalizes the wear on the cells and produces a steady current. Suppurative swelling of the skin or subcutaneous connective tissue, such as boils or carbuncles, may be averted, aborted, or cured by prompt galvanization in cases subject to such maladies, if the disorganization has not gone too far. Those cases of psoriasis due to nervous depressions are often cured, not alone from the tonic effect, but because the constant current is of itself frequently curative in this affection. In herpes simple or herpes zoster no agent is better adapted to remove the intense burning and prostration than mild but continued galvanization. The vesicles are rendered fewer; they are checked in their spreading, and drying is hastened by the current. In those suffering from skin poisoning after contact with the rhus toxicodendron and allied climbers, galvanism is especially efficient as a calmative and a curative. Discolorations of the skin, such as lentigo (freckles), chloasma, vitiligo, and rosacea, are generally amenable to galvanic treatment. In birth-marks, port-wine stains, and the whole class of similar disfigurements, nothing equals galvanism, either applied by sponge-electrodes, or, when needed, by galvano-puncture, in remedying the cosmetic defect. Thorough epilation is only possible by means of the needle operation. In alopecia, either general or circumscribed, galvanism is unequaled as a stimulant when the hair-bulb is still alive. Cataphoresis is likely to render the greatest services, and parasiticides are of greater service when applied in this way than when employed in the form of lotions and ointments. The stimulating effects of the current are valuable in curing cases of gleet not dependent upon narrowing of the canal. In the same way the local application is very useful in curing chronic ulcers of the leg, particularly when corrosive chloride is driven in under galvanism. The galvano-cautery is used for the removal of warts, horns, excrescences, nævi, varices, and pedunculated marks. In chancres, chancroids, anal condylomata, and enlarged glands dependent on venereal diseases the galvano-cautery is an efficient therapeutic agent. The opening of buboes is advantageously done with the galvanic knife.

The same writer believes that no improvement in urethral surgery excels that lately gained by the electrolysis of stricture. Galvanism has occasionally proved serviceable in the treatment of chromophytosis (tinea versicolor), which, though usually very easily managed, is sometimes stubborn. Galvanism allays the itching of urticaria, and sometimes appears to shorten its duration. In cancer the observations have as yet been too few to know whether a specific alterative effect is brought about. Destructive local action can be effected. In lupus and lupoid ulceration the good effects of galvano-cautery are undeniable. Hæmorrhage from superficial cancer, or cancer of the womb, is checked by positive polar galvanization, as is that from bleeding varices. Faradic electricity is often useful in the same affections for which static applications are recommended, and will often prove effective when galvanism does not respond. In many cases the alternation of the currents is beneficial. In hæmophilia and hæmatidrosis, which are very difficult to control, faradism is invaluable, as it at once produces contraction of the capillaries. Chilblains are quickly amenable to this current. In acne lesions it sometimes quickly relieves the itching and reduces the swelling of the skin. The central method is indicated in conjunction with local applications. Gentleness is indispensable, and a thorough antisepsis of the electrodes is needed, to avoid communicating diseases from one patient to another. More especially is this the case after applications to syphilitic patients. Great care should be taken that the instruments are in good order, and particular attention should be paid that women and children are never alarmed.

Neuralgia.—Shoemaker,[760 Aug.31] in an article on the clinical uses of electricity, mentions a case of severe cervico-brachial pain, of intermittent character, which compelled the patient to resign her position as a clerk, and in which the numerous antiperiodics and tonic with narcotics failed. Galvanism was applied daily,—the positive (stabile) to the shoulder, and the negative to the arm, forearm, and hand (labile), with a current beginning at 5 milliampères and running up to 60 milliampères. This cured her in three weeks. She had been sick for four years previously, but now remains well after three years. Another instance was that of a washer-woman, who suffered from a severe facial pain, involving the cheek, eye, and temple of one side. She had had nausea, constipation, and no appetite. For these symptoms the patient was treated for liver and stomach disorder by one physician, by another for kidney disease, and for dyspepsia by still another. Next, a gynæcologist treated her womb and ovaries, but all to no purpose. Pressure over the focal points caused relief more than pain, hence faradism was used; a moderate current traversing the sensitive parts on the face and passing to the nape of the neck removed all the symptoms in some twenty-five applications. A combination or alternation of general faradization and localized galvanization along the spine is wonderfully efficacious in all forms of hysteria and spinal irritability.

Convulsive Attacks.—Epilepsy and epileptiform seizures are at times susceptible of cure or material benefit by galvanism. According to Shoemaker,[760 Aug. 31] the preferable method is to apply descending currents from the vertex to the epigastrium. If convenient the current should be applied so as to anticipate the spasm; and experience has shown its power to cut the seizure short as to duration, and sometimes to abort it. The bromides are heightened in their effect by conjoined electrization, and when minor epilepsy is simply held in check by bromides electricity should at least receive a fair trial, because, in the hands of experts, it has completed a cure in many such cases. Chorea and allied tremor is often notably relieved by general galvanization. Cases occur in which a single muscle will twitch, as, for instance, that one short in extent, but long in name,—the levator labii superioris alæque nasi. Local faradization has often cured such spasms, as also that of one or both eyelids. The ordinary chorea of schools is usually cut short by a strong faradization of the entire surface.

Paralysis.—The various paralyses afford, according to Shoemaker,[760 Aug. 31] a wide field for electrical treatment. Of course, when dependent on central lesion, such as pressure from intra-cranial hæmorrhage, time should be given for thorough absorption of the clot, but in from six to twelve weeks after the onset no remedy equals faradization locally to the affected muscles. Gentle galvanization of the brain shortly after the seizure undoubtedly tends to hasten absorption of the effusion. In Bell's palsy nothing exceeds in usefulness localized galvanism. The affected muscles should be picked out separately and submitted to a treatment one at a time. At times, when the constant current is tardy in acting, static sparks may be advantageously substituted. Recovery is sometimes so quickly attained as to astonish the patient, who, if a lady, is naturally solicitous about the distortion which is annoying to her. Galvanism is of value in some diseases of the eyes. C. S. Bull[1] Apr.27 is quoted as reporting that, "in traumatic anæsthesia of the optic nerve and retina, uncomplicated by any laceration of nerve-tissue or rupture of nerve-fibres, galvanism carefully and persistently applied has been known to produce a rapid and permanent improvement of vision, when applied directly to the closed lids and the current passed through the eyeball." Shoemaker further mentions, as being amenable to treatment by electricity, and as frequently relieved or cured, the knife-pains of locomotor ataxia, sciatica, and neurasthenia in some forms. Many alienists, particularly abroad, are reporting favorably on the use of galvanism in mental disorders. The use of electricity in the diseases of women is described, as well as its excellent effects in chronic constipation.

Gastric and Intestinal Disturbances.—The electrical treatment is successful in various forms of gastric and intestinal disorders. Gastralgia and stomach-cramp are usually relieved at once by galvanism, as is pyrosis and the vomiting of pregnancy. Torpor of the liver is readily overcome by the use of strong faradic currents, or, if chosen, static insulation and drawing of sparks is a proper substitute. Several instances of dislodgment of impacted gall-stones have been reported by well-known electrologists. In hæmorrhoids the trouble is often relieved by electrical treatment directed to the chylopoiëtic circulation. In phthisis, in the service of W. R. D. Blackwood at St. Mary's Hospital, Philadelphia, very decided relief has ensued under the application of both faradic and static treatment. The night-sweats were often checked for a week after the first dose and the chest-pains were notably diminished. The nutrition was sometimes greatly heightened, and this gain alone was valuable in such cases.

Thoracic Diseases.—Chronic bronchitis and spasmodic asthma have received much benefit from faradization of the thorax, and the dyspnœa has been reduced in gravity. In two instances reported by Shoemaker the paroxysms of angina pectoris were aborted by prompt galvanization of the sympathetic, the left side being selected preferably in both subjects; the relief was quicker than that following the inhalation of amyl nitrite. Hay fever has received pronounced benefit from galvanism applied as in exophthalmic goitre.

Vasomotor Disturbances.—In vasomotor disturbances electricity plays a very important part as a curative agent. As a means of producing counter-irritation in joint troubles, such as in gout or articular rheumatism, static induction is frequently preferable to faradism. Both galvanism and faradism have decided effect in reducing febrile conditions. This is due partly to the known power of electricity to equalize the circulation, the pulse being slowed in the majority of instances, without, however, reducing its volume or tone. One good result attainable from the latter effect is the relief of insomnia in cases where drugs can be desirably omitted. General faradization at bed-time in fever cases not only reduces the temperature, but it has a special calmative effect, advantage of which should be more frequently taken.

Diseases of Childhood.—In diseases of children Shoemaker states that electricity obtains characteristic good results. Marasmus, or general wasting, and general debility without loss of muscle, are readily overcome by thorough treatment. General faradization should be used. Incontinence of urine may be controlled by galvanism faithfully pushed. The vomiting in cholera infantum is sometimes checked by mild faradic applications to the pneumogastric. Dyspnœa following whooping-cough, measles, and scarlet fever, and aphonia resultant from these affections, are ordinarily removed without difficulty by galvanism, and in the latter symptom static electricity is extremely valuable. Dropsy following scarlatina is at times quickly reduced by localized electrization, as is œdema in either children or adults, provided Bright's disease is not apparent. The excretion of urinary solids is apparently promoted through local faradization of the kidneys in diabetes, whilst the volume of fluid is not increased, but, on the contrary, rather diminished in some cases. Cystitis of children and adults is often cured by careful faradization, which tends to contract the engorged capillaries of the mucous lining of the bladder.

Erectile Tumors.—Th. Gessler [886, Sept.7] reports 221 cases of angioma treated at the clinic in Tübingen. Sixty cases were treated by excision, 73 by ignipuncture, while in the 88 remaining the galvano-cautery, ligation of the nourishing arteries, or injection of a solution of chloride of iron were employed. In 10 of the most severe cases the patients were subjected to electrolysis, with the favorable result of nine cures.

John Duncan[59 Feb.16] gives the result of electrolytic treatment adopted by himself in cases of nævi, cavernous angioma, pulsatile angioma, and goitre. Many of the cases were of extreme severity and had proved rebellious to other forms of treatment. His results in angiomatous cases were uniformly successful. The current was between 40 and 80 milliampères. This he considers a matter of small importance.

Duncan[59 Feb.16] states that he has not as yet had sufficient experience in the treatment of goitre to be able to define with precision its advantages. He gives the result in 14 cases, 3 of which are still under treatment and already show beneficial results. One is a fibro-cystic, another a strongly-marked exophthalmic, the third a vascular goitre, with considerable dyspnœa. Eleven remain, 2 or 3 having slight vascular variety. Four of them it was impossible to trace. These cases were only in the infirmary for a day or two, and their addresses were lost. Two patients returned for another operation, having been benefited by the first. Of the others, 6 have been absolutely cured, while the seventh has the tumor in no way changed by one operation. These results Duncan thinks are very encouraging, and that with greater experience we shall be able to operate with more confidence.

Lacaille,[24 June 23] in a study upon slow negative electrolysis and its action in producing retrogression and atrophy in goitres, together with the disappearance of concomitant phenomena due to pressure, states that two of the results are easily controlled: In the first place, a more or less rapid disappearance of the pressure-symptoms caused by voluminous goitres, and particularly by exophthalmic goitres; in the second place, a relatively considerable diminution in the size of the tumor itself,—a result as greatly appreciated as the other one by patients who suffer from the appearance of the deformity. It is easily understood that it is impossible to totally suppress a hyperplastic mass, and especially one of long duration, but the results already mentioned are sufficient to lead one to make a trial in every case. The author mentions 3 cases. The first, a young woman of good constitution, had a soft tumor of the size of half of an egg, cut in its long diameter. This tumor followed the motion of the larynx in deglutition. The growth had taken five years before acquiring its present size. Electrolysis was applied every other day for four months, after which lapse of time only a very small difference from the normal, which could not be appreciated by vision, remained. On palpation a very small and flattened tumor could be perceived; the diameter both in length and breadth had diminished at least two-thirds. The case was one of partial hyperplasia of the thyroid body. The next case, also a young woman, had had goitre since the age of 4 years, but had suffered no inconvenience therefrom until a year from the time of observation, when she had begun to suffer from intense oppressive phenomena. Moreover, she complained that her eyes were coming out of her head. In fact, she presented an advanced stage of exophthalmia, and her voice had the quality peculiar to advanced goitre. Examination of the neck revealed a tumor rather less in size than might have been supposed from her symptoms. It was pretty regularly situated over the neck and broadened toward the base. Electrolysis was begun with much care, owing to the great vascularity of the tumor. Most of the punctures drew a little blood, and one caused a small hæmorrhage of rather rebellious character. The oppression diminished after three or four *séances*, although, of course, the position of the eyes was not changed. After five months of applications made from once to three times a week, irregularly, owing to the patient's being a servant who could not always spare the time, the tumor was considerably atrophied, while there was a total disappearance of the dyspnœa and of the uneasy feeling about the eyes. Another case of longer duration and greater extent is still under treatment, but has already shown a diminution of one-third in the size of the tumor.

Seigneur,[55, Sept. 14] gives a careful description of the methods employed by Redard in the treatment of erectile tumors by electrolysis. He states that the operation is attended with but little pain, and that the current used gives rise to sensations which are not very disagreeable, the intensity employed being never greater than 25 milliampères. The operation is not a very bloody one, as the needle itself prevents the issue of blood, while the reversing of the current, prior to removal, nearly always prevents bleeding. The sequelæ are never disagreeable, while the cure is prompt, and the affection never returns. One of the greatest advantages of the method is to effect a cure without leaving cicatrices, and inasmuch as the majority of erectile tumors have their seat upon the face, and often on the eyelids, unsightly scars and ectropions, with conjunctival and corneal inflammation, are avoided.

Several needles are commonly used, and connected with the positive pole. The negative electrode is placed at some distance from the face, thus increasing the resistance but lessening the chances of syncope. The most rigid antiseptic precautions are taken. After the *séance* has lasted for some three minutes the current is slowly brought back to zero and the poles are reversed, with the result of causing the clot immediately adhering to the needle (and which is a hard and strongly-adhering one) to become soft and non-adherent. A negative current of small intensity is passed for about fifteen seconds, after which the needles may be withdrawn, when there will be but little or no bleeding. At the first *séance*, however, it is always difficult to avoid a little hæmorrhage. An iodoform dressing is then applied. The operation is followed by a slight reaction about the points of entrance of the needles, which, however, will be of little import if the antiseptic precautions have been well taken. When this reaction ceases, after the lapse of three or four days, the patient is ready for another application. Seigneur observed that, in the majority of cases, from three to six sittings, with an average of about eight punctures at each, were commonly sufficient to bring about the desired result.

In conclusion, this observer states that the procedure in question is the method of election; that it is exempt from danger and complications; that it causes but little pain and loss of blood; that it cures voluminous tumors after a brief lapse of time; that it leaves no scars afterward, and, finally, that it is an operation of great simplicity, requiring an apparatus which is not complicated and can be used by every surgeon.

Basedow's Disease.—Danion[24, Dec. 8, '88] reports two cases of Basedow's disease considerably improved by electrical treatment. One case, a woman aged 31, in whom the disease was of ten years' duration, presented, when first seen by this observer, an extreme prominence of the eyes; the thyroid region was exceedingly voluminous; she trembled considerably, and suffered from frequent palpitations. The result of treatment in this case was that she considered herself perfectly cured, and Danion thinks there is good reason to hope for her thorough recovery.

Although galvanism is the form of electricity that gives the best results in these cases, the writer thinks that the combined use of faradization cannot but prove of advantage, and proposes the following mode of treatment: During twenty or thirty *séances*, according to the severity of the affection, stabile and labile negative electrization of the vago-sympathetic and of the goitre, if one exists. The positive pole will consist of an electrode applied to the nucha. The intensity should be of 6 to 10 milliampères for eight to ten minutes. Immediately after this the same positive electrode is to be applied to the nucha, with stabile negative electrization of the præcordial region, with an intensity of 7 to 12 milliampères during five to seven minutes. The *séances* should occur three times a week, and better every other day at first. Two *séances* a week should be the minimum. To this may be added, as some authors have advised, a stabile electrization of the vertebral column, or, as Danion thinks preferable, of the abdomen, during one and a half to two minutes with 10 to 15 milliampères; this latter practice is often inconvenient, however. After this, either deliberately or because the voltaic current seems to lose its effect, a general faradization, according to Rockwell's method, or an abdominal faradization lasting seven to eight minutes, will be practiced during fifteen to twenty days. The intensity should be small at first. Danion here remarks that the abdominal faradization is done in deference to Foedern's opinion. The latter places the starting-point of the disease in the abdomen. In any case, we thus act more directly over a large mass of the great sympathetic,—a procedure which must be considered as a useful one, the disease seeming, as it does, to be an affection of the great sympathetic system. Danion further states that with both voltaic and faradic currents high intensities are to be avoided; neither does he think that there is any great importance in the respective positions of the opposite poles. The use of statical electricity in this disease is not as yet known to be of benefit.

Cancer.—J. I. Parsons[2, Apr. 27] reports upon his investigations on the treatment of cancer by a powerful interrupted voltaic current. His procedure rests upon the theory that cancerous growths, tending as they do toward a destructive process, can be injured beyond power of repair, while healthy surrounding tissue will recover from the shock. He employs a battery of 70 cells, with an electromotive force of 105 volts. The current employed is at first of 10 milliampères, and is made to reach 600. In one case in which there was carcinoma of the left mamma in a woman who was subject to a valvular affection, only 250 milliampères could be used on account of the effect of the current upon the diseased heart. The author observes, as a result of his treatment, a cessation of growth, gradual disappearance of pain, some shrinkage and hardening of the tumor, and enlarged glands, followed by improved nutrition and better state of the general health. The growth, as a whole, does not, in the experience of this observer, disappear, but remains as an inert mass, composed, in all probabilities, of fibrous tissue alone. Parsons relates 4 cases in which good results were obtained, and sums up the advantages of his method of treatment as follow: 1. There is no destruction to the normal tissues of the body, and, if recurrence should at any time occur, its progress can be immediately stopped and the treatment repeated as often as necessary. Life would by this means be prolonged indefinitely, provided that metastatic deposits had not occurred before the commencement of the treatment. So far, cases able to bear the full strength required have shown no signs of recurrence. 2. Patients are not obliged to remain in bed, but are able to get about on the day following the application. 3. The current can be passed through almost any part of the body, and thus arrest growths which could not, by any possibility, be otherwise treated. 4. It will always be open to patients to have the remains of the growth subsequently removed by the knife.

Gynæcology.—J. Wesley Bovee[61 Apr. 18] reports several cases of pelvic disease much improved by the use of the electrical current, and sums up with the opinion that he thinks not much good will come from the use of electricity in large pelvic abscesses or in tumors of a cystic or malignant nature. But he thinks that nearly all other diseases of the pelvic viscera are amenable to its restorative influence. Even small abscesses and small cysts of these structures are, he believes, curable by the judicious application of this remedy. In many of the cases that have been reported as cures of ectopic gestation by electricity the condition of the patient's pelvic organs previous to the discovery of the so-called pregnancy had not been known. The diagnosis in them was faulty, but the treatment perfectly satisfactory. It is not unfair to assume that some of these cysts were not pregnant cysts, but arose in some other manner. Certainly, no failure, even in quite inexperienced hands, of the electric current in such cases has ever, to his knowledge, been published.

W. J. Sinclair [90 Aug.] analyzes a paper by Engelmann, of Kreuznach, [817 No. 25] describing a visit to Apostoli, from which we quote:—

"The method of treatment by electricity in diseases of women, as recommended by Apostoli, has, for the last two years, received renewed attention from the English and American gynæcologists. Numerous articles have been written for and against the method, and men like Spencer Wells, Playfair, and Thomas Keith have given it cordial support. Keith, the successful laparotomist, has given expression to his opinion in an article in which he refers to 64 cases of supra-vaginal hysterectomy on account of myoma, with only a slight mortality, and he declares that he regards it as a crime to proceed to operation without giving a fair trial to Apostoli's method."

Engelmann goes on to say that he has repeatedly called attention to the matter without attracting much attention. A year ago, Orthmann, at the suggestion of Engelmann, of St. Louis, gave the method a successful trial in cases of old-standing exudation. Noeggerath [4 No. 3] and Bröse [69 June 13] have also published papers on this subject.

Engelmann [317 No. 25] recently had an opportunity of observing these methods during a fourteen days' visit, and his impressions are as follow: The chief difference between Apostoli's methods and his precursors' lies in the higher intensities used by him. Engelmann then describes the technique employed, and notes that an exact galvanometer is always used for measuring the intensity of the current. All applications are carried out under the strictest antiseptic precautions, the sounds and needles being heated to redness every time before they are used. The treatment is applied chiefly in cases of uterine myoma, but it is also used in endometritis, metritis, and inflammatory conditions of the adnexa as soon as the acute stage is over, and various other diseased conditions are treated in the same way.

The faradic current is employed for the most part as a sedative in neuralgic conditions of the sexual organs, and chiefly by the introduction of a bipolar sound in the vagina or uterus.

The current employed by this observer is produced by means of a stationary Gaiffe's battery with Leclanché elements. Recently a portable battery has been introduced, also constructed by Gaiffe, by which the problem how to obtain a current of sufficient intensity with small elements has been solved. This latter is strongly recommended by Engelmann from his own experience of it. The method of application is as follows: Supposing a case of large myoma uteri is to be treated, the patient is placed on her back on the operating-table; the clay-electrode is applied over the tumor so that the skin is thoroughly wetted; the vagina is disinfected, and then the platinum or carbon sound, which has been heated to redness and cooled in a disinfectant fluid, is introduced without the aid of a speculum.

As a rule, the sound is made the negative pole, but, in cases of hæmorrhage, it is the positive. The apparatus is now slowly brought into action, one element added after another, until the intensity reaches 30 to 80 milliampères, according to the sensitiveness of the patient. This suffices for the first application, and, after five minutes, the strength of the current is gradually diminished to zero. The vagina is again disinfected and the patient is made to rest for a considerable time. The dispensary patients are made to lie down for several hours before they begin their walk home. The applications are repeated, not oftener than twice a week, and the intensity of the current is made ultimately to reach 150 to 200 milliampères. Pain in the uterus should not occur, but there may be contraction, discomfort, and even bleeding sufficient to require a tampon. The sensation in the skin must not exceed the burning of a mustard-plaster.

The process is considerably modified when a puncture is to be made, as in the treatment of chronic oöphoritis. The position of the enlarged ovary is exactly made out, and the insulating tube is pressed against it under guidance of the finger. The needle is then passed through the tube and made to penetrate the tissues to the desired extent, never more than 1 centimetre (⅛ inch). The intensity of the stream is carefully increased to 30 or 40 milliampères; the application lasts for only two or three minutes; then the parts are carefully disinfected and a tampon is applied. The patient rests in bed for a day or two.

Engelmann then proceeds to give his impressions regarding

Apostoli and the results of his method. He visited the clinic in order to test the method without any prepossession in its favor. From the writings of Apostoli's disciples he had taken the impression that, though the treatment might be useful in some cases, still there were required for its employment a good deal of enthusiasm and an absence of the critical and scientific turn of mind, if nothing worse. The impression which Apostoli himself produced was absolutely favorable. He says: "He presented the appearance of a quiet, sober-minded, strictly-scientific observer, with nothing enthusiastic or superfluous about him. The first impression was deepened by his bearing as a clinician. He has a plentiful supply of clinical material and makes use of it in a strictly-scientific fashion. The notes of cases are taken in a full and exact manner, and the examinations are made in such a way as to create in the numerous on-lookers the belief that Apostoli is an able diagnostician, very far from deserving the reproaches leveled against him in some quarters. Every case is examined by one or other of the specialists present, among whom are to be found men bearing widely-known names, and thus the diagnosis is tested in every way." Every facility is afforded the visitors toward obtaining histories of cases and satisfying themselves as to the effects of the treatment. In cases of tumor the investigation is specially searching and exact, in order to eliminate every error, if possible. The measurements are taken with extreme care, and, in interesting cases of large tumors, plaster casts are made at intervals during the treatment in order to demonstrate the changes which have occurred.

After specially referring to the striking effects of the faradic current in ovarian neuralgia, mentioning in detail his own method of examining into the results and stating the facilities offered him, Engelmann puts his conclusions in the following propositions: 1. The electric treatment of diseases of women is a distinct addition to our means of dealing with some of these obstinate ailments. 2. Apostoli's method rests upon a scientific basis and is employed in a strictly-scientific manner. The results which have been obtained by it appear to excel essentially the results of other methods of treatment. It is therefore the duty of the gynæcologist to familiarize himself with the process and to subject it to a searching test. 3. The results in cases of myoma are such that, considering the uncertainty of other methods of treatment and the high mortality of hysterectomy, we must welcome any additional aid in the hope of possibly avoiding the danger of operation. It appears to be a just position to maintain that operation should be proceeded with only when the electrical treatment has been fairly tried and has failed. 4. Many of the diseases of women, especially metritis, endo- and peri- metritis, as well as inflammation of the adnexa, appear theoretically to be suitable for electric treatment and have proved so in practice. 5. The method of treatment is simple, easy to learn and carry out, and it presents no danger if antisepsis be attended to. The cost of the apparatus is not so great as to be a hindrance to its use by the specialist.

Noeggerath, of Wiesbaden,[4 No.3] and formerly of New York, describes his experience at Apostoli's clinic in the following words: "I will here emphatically state my opinion that Apostoli is an enthusiast, but at the same time a trustworthy, conscientious observer and investigator, who thoroughly deserves our confidence." He answers the objections raised against it on account of the long duration of treatment by an apt comparison with the amount of time needed in the treatment of other chronic ailments, especially of the lungs and heart. He refers to 8 cases in which the patients got tired of the treatment and submitted to operation. The operations were all performed by eminent surgeons, and yet in not one case did the patient survive.

Bröse, of Berlin,[317 No.16] read a paper in which he related results which he had obtained by Apostoli's method and which had proved quite satisfactory. He had also used faradic applications in cases of chronic constipation, using large electrodes, according to Apostoli's plan, and with good success. Olshausen expressed himself as being satisfied as to the utility of the procedure.

A. Warnier[154 Sept.15] thus briefly formulates the indications of the electrical treatment in gynæcology: 1. Fibromata of the uterus. If the principal symptom consists in hæmorrhages (interstitial and submucous fibromata) the positive pole should be used within the uterus. If pain is the chief symptom (especially interligamentous fibromata) the negative galvano-puncture should be used. 2. Chronic metritis. First stage, positive pole; second stage, negative pole. 3. Subacute peri- and para- metritis, vaginal electrization with the positive pole; chronic exudates, negative pole and negative galvano-puncture. 4. Periuterine hæmatocele, negative galvano-puncture. 5. Oöphoritis and pachysalpingitis, negative electro-puncture. 6. Subinvolution, positive faradization and galvanization. The contra-indications are: All movable tumors of the ovary and malignant tumors.

The author's conclusions are: 1. Electricity, after Apostoli's method, constitutes a potent therapeutical means in gynæcology. 2. One may obtain in many cases by electricity, with no risks to the patient, nearly the same results as with a very dangerous operation (in fibromata). 3. In some cases electricity brings about a more speedy and complete recovery than by any other known means (chronic forms of parametritis, metritis, oöphoritis). 4. Electricity must not be considered to be a panacea. 5. A rigorous observance of antiseptic principles must be maintained during treatment by Apostoli's method.

Nocturnal Incontinence.—R. Jamin[24, Apr.14] treated by direct faradization of the urethra, by means of an olive-tipped sound, a young girl, aged 15, whom all ordinary forms of treatment had failed to cure of obstinate noctural incontinence. Eleven applications resulted in her only urinating in bed once after a lapse of four months after the operation.

Rectal Diseases.—W. S. Shotwell[82, Aug.17] treats fistula in ano by the following process, using an electrolytic battery of 12-ampère power. After the patient's bowel is thoroughly emptied the inner opening is located by means of a suitable speculum, or, if it be an external incomplete fistula, the side opening of the rectoscope is so turned that the possible opening is in view. The fistulous tract nearest the anus is then straightened out by means of a stiff steel probe, having an eye near its introductory end, and if the fistula does not open into the bowel he perforates the intervening tissue till the eye of the probe is distinctly seen in the rectoscope. Leaving it there, he next introduces a lance-pointed probe, having also an eye near its end, about three-eighths of an inch farther from the anus into the solid structure and parallel with the fistulous tract till its eye is also seen penetrating the bowel in the opening of the rectoscope. The eyes of both probes are threaded with the opposite ends of a No. 24 platinum wire, about ten inches in length, and both probes are then withdrawn, leaving the wire *in situ*, forming a loop. Both ends are now secured to an electrode, the electric current turned on, and the loop drawn through the partition, in its passage destroying the membrane which lines the fistulous tract. No dressing is necessary owing to the well-known property of kindly healing possessed by battery wounds, but the bowels must be kept locked up for a week, at the end of which time the cure is complete. The author thinks his process very far superior, as to results, to any others heretofore employed.

Electrolysis of the Urethra.—Danion[67, Nov. 30, '88] asserts that by his method of linear electrolysis, as applied to strictures of the urethra, he is able to obtain the very best results. He has shown that he was able to introduce a 20 French bougie in a patient who, before the operation, could scarcely admit a 4 French. The result was obtained with scarcely any pain, with no danger, without the loss of a drop of blood, and in a few minutes. In cases in which there is a retention of urine due to prostatic enlargement, the method is used in the same manner, there being a destruction of the prostatic substance. The author mentions a number of similar cases, as well as instances of œsophageal and cervical strictures, which have been treated with the greatest success.

Lead Poisoning.—Semmola[14, Sept. 4] reports the results of his treatment of chronic saturnine poisoning by the use of the continuous current. The first essays were conducted while the patient was in an acidulated bath. One pole was placed over the tongue while the other was placed in the water. The water and the metallic sides of the bath showed absolutely no deposition of lead, but the urine, after a few days, demonstrated by analysis a quantity of the metal such as to show that much increased elimination was taking place. Other essays were made without the bath, the latter appearing to possess no advantage, and were followed with similar good results. The poles were placed over the tongue and pit of the stomach. Patients who could not stand the electrode being placed on the tongue had one pole applied to the sides of the vertebral column. The local use of electricity was never employed, nor had any iodide of potassium been given any of the patients before or during the treatment. The blue coloring of the gums disappeared after about three weeks, and feeble movements of the paralyzed and atrophied extensors of the fingers began. The cure was commonly quite slow, but in the majority of the cases it was quite perfect,—a result attained afterward by several other observers, among them Serafini, who joined to the electrical treatment a milk diet. Semmola's experiments were conducted with the assistance of Vizcoli, Professor of Electro-Therapy and Neuro-Pathology in the University of Naples.

It is to be noted that this treatment remains inefficacious in those cases which have already begun to show saturnine encephalic disease, owing, the author believes, to the severity of the degenerative alterations already produced in several of the organs.

NEW INSTRUMENTS.

F. Eklund, corresponding editor from Stockholm, $^{775}_{\text{v.12, p.299; v.14, p.139}}$ reports a new rheophore-handle serving to avoid the usual inconvenient way of dipping the sponges. The handles, which are hollow, serve as reservoirs for the liquid to be employed. This is propelled toward the sponges by a rather stronger pressure than usual upon the patient's skin. Before they are put in use the handles are easily filled by a simple method of aspiration. The advantages of this process are that the rheophores are charged without the spilling of a single drop of water, and that by means of a very simple motion the sponges are constantly at the proper degree of humidity.

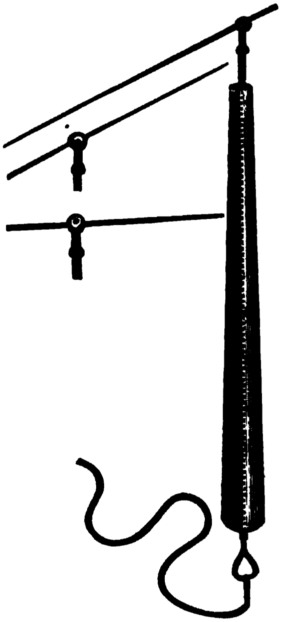
Vohwinkel, $^{8}_{\text{June 14}}$ an electrician, showed, at a meeting of the Society of Physicians in Vienna, an electrical illuminating apparatus which may conveniently be carried in the pocket.

Kuhn, of Strassburg, $^{69}_{\text{Oct. 24}}$ has devised a new accumulator for galvano-cauterization. It has been devised for the purpose of being carried about easily, and gives great power for a fairly-long interval of time.

F. J. Leviseur $^{59}_{\text{Nov. 9}}$ has devised a needle-holder for the removal of hairs by electrolysis, which enables the operator to use the utmost accuracy in probing the little *cul-de-sac.* It is a needle-holder modified after the following manner: The small metal point is ball-shaped and perforated from top to bottom, as well as from behind above to in front below. The needle can be inserted and fastened by screw arrangement in three different positions, so as to form, with the handle, a right or an acute or an obtuse angle. The operator, who is standing or sitting behind his patient, holds the instrument like a writing-pen. His forearm is at rest, and a slight movement of the wrist suffices to make the needle enter deeply into the hair-follicle with an easy and elastic motion.

There is no place in and around the patient's face that could not easily be reached by the instrument.

G. Gaertner$^{8}_{\text{Oct.31}}$ has devised a two-celled bath for the administration of electrical baths. The patient is placed in the tub and a suitable diaphragm is placed over him, which divides the bath in two sections. Each section is electrified by a plate connected with one of the poles. The water in the two sections only communicates in a nearly-capillary manner, thus offering a resistance which can be disregarded as compared to that of the body.



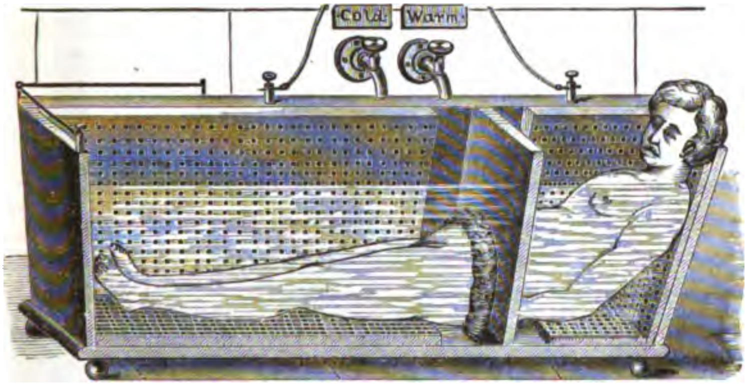
LEVISEUR'S NEEDLE-HOLDER.
(*Medical Record.*)

The advantages of this form of bath are: that the intensity of current is nearly the same at all points of the body which are immersed; it enables one to make use of very weak as well as strong currents; the intensity of the current passing through the body may be accurately measured.

O. B. Douglass$^{1}_{\text{May 28}}$ read a paper before the New York Academy of Medicine in which he showed the advantages arising from the use of electricity as supplied by an Edison dynamo in medicine, and described the method (an adaption of Parsell's) by which he regulated the strength of the current. W. B. Vanderpoel agreed with the speaker as to the good results obtained in this manner.

G. Mayerhausen$^{4}_{\text{Apr.28}}$ has devised a rapid-circuit closer for thermopiles. It consists of two nickeled copper wires, about 2½ millimetres (1/10 inch) in diameter, having a knee-curve above, where they are inserted into the screw-plates of the thermopile. The remaining parts are 9 centimetres (3⅗ inches) long, and for greater firmness are held together in the middle by a rubber plate. Below they are bent at right angles, but in an opposite direction, and are furnished at the end with screw-clamps, to which are fastened the wires leading to the induction apparatus. To the right lower horizontal portion is attached, immediately in front of the screw-clamp, a nickeled copper rod turning upon a hinge, which can be rotated so that its free end, which in turn ends in a button, may be brought in contact with the opposite portion. At the points of contact both the rod and the left horizontal plate are provided with small platinum plates.

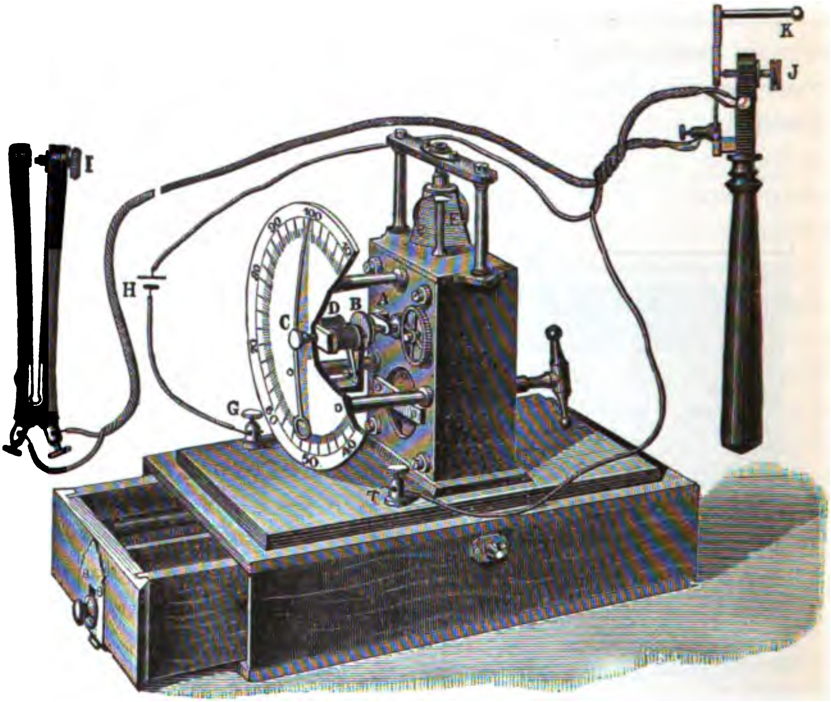
D'Arsonval$^{71}_{\text{Apr.1}}$ has devised an apparatus for the accurate measurement of the rapidity of the nerve-currents. This device appears to be an improvement upon those first designed by Helmholtz and Marey in that it may conveniently be used at the bedside and is generally easy of application. The inventor has shown that agents such as heat, cold, etc., possess different degrees of rapidity of conduction. He has also demonstrated that in some nervous troubles the rate of conductivity may be either increased or lessened.



Gaertner's Two-Celled Bath.
(*Wiener Klinische Wochenschrift.*)

Armaignac,$^{188}_{\text{June}}$, describes a simple, cheap, and efficient galvano-cautery. It consists of a large Grenet element, as found in the trade, containing two litres and having two zincs. These he bound together by means of a brass cross-piece furnished with a ring, thus connecting the stems already attached to the zinc plates. This enabled him to immerse them simultaneously in the solution of bichromate of soda or potassa. This arrangement permits him to obtain the entire effects of the element, from the minimum to the maximum of its power, by the greater or lesser immersion of the zincs. If only a very fine platinum ring is to be heated to redness, the immersion of 1 or 2 centimetres of the plates will be found sufficient. By lowering them altogether a wire of $\frac{1}{8}$ of a millimetre ($\frac{1}{38}$ inch) in diameter may easily be heated a centimetre ($\frac{1}{8}$ inch) of extent.

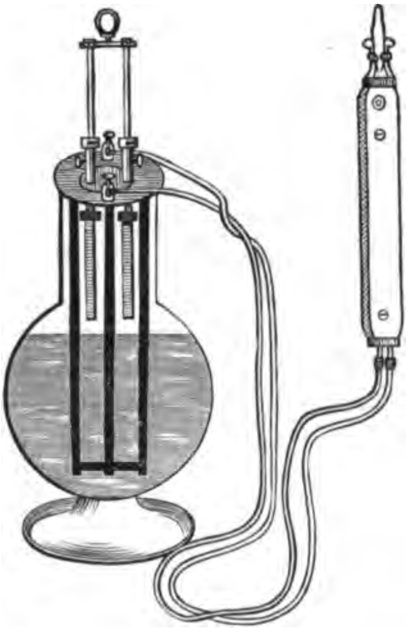
The handle used is also exceedingly simple, allowing the surgeon to devise in a moment, with a piece of platinum wire, cauteries of whatever shape may be required. It consists in a very thin and light handle, as easily held as a bistoury or a penholder. It is made of two ebony blades united by screws or rivets, and inclosing two thick copper wires, one of which is continuous while the other has a system of interruption worked by means of a button which is placed externally. At the upper part these wires are grooved, this groove serving to receive the platinum wire, which is held in place by a sliding ring.



D'ARSONVAL'S NERVE-CURRENT MEASURER.
(*Monatschrift für Aerztl. Polytech.*)

Statical Apparatus.—H. Montague[176 Mar.] describes Harris's improved Wimhurst static machine. The writer's views upon the use of static currents are well known to be that this form of electrical application produces strongly-marked tonic effects, superior to those produced by any other form of electricity; that the appetite is increased and all the cutaneous functions stimulated.

Plym. S. Hayes,[139 Mar.] in a critical consideration of the various forms of milliampèremeters, states that, inasmuch as the instruments are destined to be placed in a circuit in which a great resistance—that of the body—has to be overcome, the resistance of the instrument being always in small amount, is not of any great moment as regards the selection of the instrument. Strict accuracy is not absolutely necessary, as a difference of 1 or 2 ampères will not materially affect the case. The conducting wire should be comparatively thick, not long enough to interpose a marked resistance, while the needle should be light, thin, and easily acted on by the current; the indicator should be made of light material, and there should be means of maintaining the instrument perfectly level.



ARMAIGNAC'S GALVANO-CAUTERY.
(*Journal de Médecine de Bordeaux.*)

H. Montague,[62 Mar.1] describes an improved umbrella-electrode consisting of two disks of hard rubber, 7 inches (17 centimetres) in diameter, through the lower one of which are inserted about 170 fine metallic points, ½ inch (1.25 centimetres) apart. Between the two disks of hard rubber is fastened one of brass, giving perfect connection to every one of the points, the whole being suspended by a nickel-plated lock to a tripod stand having actual ground connection or not, as the effect is wished to be intensified or lessened.

Illumination.—Wiesmann, of Appenzell,[214 Sept.1,'88] performed a resection of a rib for empyema in a child aged 2. One morning the tube was found to have escaped into the thoracic cavity. Every means was adopted in order to find the tube, unsuccessfully. The writer then inserted through the opening a small Chardin's electrical lamp, of the size of a nut, which up to that time he had looked upon as a mere toy. The cavity in a moment was splendidly illuminated. The pleura covered with granulations, the heart beating against the pericardium, the collapsed lung, were all clearly seen; and, behind the lung, was the *corpus delicti*, which was easily seized with forceps and extracted.

Electrical Resistances.—Danion, of Paris,[170 Ap. 1] has lately made a report of his studies in the diffusion of galvanic currents in the human system. His conclusions are that, excepting the skin and bones, the various tissues of the organism have practically the same electric conductivity; that of the bones is less by two-thirds than that of the other hypodermic tissues. In proportion as the electrodes are brought together the field of diffusion is limited, even to rendering it unnoticeable. It is necessary in practice to use large electrodes, unless one wishes to secure superficial effects. The osseous structures cause an increase of resistance in proportion to their nearness to the surface; hence, the brain and cord are protected particularly from diffusion.

Electrical resistance has been made the subject of interesting studies by G. Gaertner,[406 No. 9] establishing the fact that the electrical resistance opposed by the human body to induction currents diminishes when the current strength is increased, so that a given number of elements, which give a certain number of milliampères, will, when doubled, occasionally give three or four times that amount. This law holds good for the faradic current.

Virgilio Machado, of Lisbon,[244 Oct.] has recently observed in a patient suffering from beriberi a notable diminution of the faradocutaneous sensitiveness, as well as of the electro-muscular contractility, with the galvanic and faradic current.

CLIMATOLOGY AND BALNEOLOGY.

BY GEORGE H. ROHÉ, M.D.,
BALTIMORE.

I. CLIMATOLOGY.

GENERAL QUESTIONS IN MEDICAL CLIMATOLOGY.

G. von Liebig[41, Apr. 1] offers a new theory of the causation of "mountain sickness." This affects persons unaccustomed to mountains at a height of 3000 metres (nearly 10,000 feet) and upward. In small degree, the symptoms are quick pulse, rapid breathing, and feelings of constriction and weariness; in higher degree, giddiness, nausea, loss of strength in the legs, finally "overfilling" of the venous system and the escape of blood from the superficial capillaries. The same symptoms may be caused, at lower levels, by violent exertion, and these symptoms, caused at higher levels without any or with very slight exertion, are due to the rarefaction of the air, the expirations being unconsciously quickened under a lower atmospheric pressure; whereas, the greater pressure at lower levels affords greater resistance to the expired air, and this makes the respirations slower. This increased frequency of respiration at higher levels is involuntary, and the respirations become more shallow to compensate for it; hence the lungs become more contracted, and they accommodate less blood. Hence ensue venous stasis and deficient oxidization. That less oxygen reaches the lungs when rarefied air is breathed is quite true, and this helps to increase the distress, but it is not the main cause of it. A person must be accustomed to the atmosphere of higher levels before a normal respiration occurs under the altered conditions of atmospheric pressure.

J. C. Wilson[1006] calls attention to the influence of climate in the production and treatment of Bright's disease. He formulates the following conclusions embodying his personal experience: The most desirable climates are those which combine the attributes of evenness, dryness, and warmth with a mean range of temperature, between 60° and 65° F. (15.55° to 18.44° C.). On the North American Continent a number of stations in the southern interior meet these indications. Among these are Thomasville and Tallahassee. The stations in the interior and on the Gulf coast of Florida are well suited to this class of patients. Southern California has several suitable stations. Nassau and Bermuda are to be recommended. The stations on the Mediterranean coast offer special advantages as winter resorts for patients suffering from chronic Bright's disease, while Algiers, Cairo, and the Cape of Good Hope are also favorably spoken of. The best results of climatic treatment in Bright's disease, as in phthisis, are obtained in the early stages of the affection and by continuous residence. After the general health has become seriously impaired an amelioration of the symptoms is all that can be hoped for. Alternations of climate, especially those necessitating long and fatiguing journeys by rail, are attended with the danger of uræmia. High-altitude climates, even when presenting the conditions otherwise favorable, are unsuitable for this class of patients. Uræmic attacks and cardiac failure not infrequently shortly follow change of residence from low to high altitudes—differences of 3000 feet or more. The conditions of North Atlantic steam-ship travel are often highly unfavorable to those suffering from advanced Bright's disease; especially is severe and prolonged sea-sickness liable, in these cases, to terminate in fatal uræmia.

An editorial article $^{1}_{\text{Oct.26}}$ reviews the contribution of Alfred Haviland $^{6}_{\text{Sept.14}}$ on the infrequency of cancer among females in the English lake districts. The article is supplementary to some remarks published last year by the same author (see ANNUAL for 1889, vol. v, F–27), and is an important addition to the literature of medical climatology. Haviland has been engaged upon investigations into the geographical distribution of disease for a number of years. The conclusions he first drew were that those low-lying districts which were traversed by, or contiguous to, fully-formed rivers, that periodically flooded the country through which they flowed, were characterized by the highest mortality from cancer. On the other hand, those districts which showed the lowest mortality had a high average level with free access of the prevailing wind, and were situated on or near the water-partings, where rivers derived their sources and where the rock base under them consisted of the older geological formations. Subsequent investigation showed remarkable exceptions to the foregoing conclusions. It was found that in certain frequently flooded river-valleys death from cancer in women was comparatively rare. The author found in these locations, coincident with low mortality, that limestone or chalk formed the rock base of the surface soil. Underlying the gravel and alluvium of the high mortality riparial districts there were the different varieties of clay, all retentive strata, calculated to intensify the evils of floods and their sequels,—dead vegetation and vegetable decomposition,—and resulting in the formation of numerous gases and acids. This not only rendered the soil sour, but injuriously affected the atmosphere above it, and therefore the local climate where floods occurred. Grasses and other vegetation covering the soil overlying chalk or limestone, even when covered to a considerable depth by sand and gravel, remained sweet. The vegetable acids, the result of decomposition, were neutralized by the chalk.

The author's deductions were that the physiological configuration and the geological structure of a district greatly influenced the local climate, and that the chemical properties of the soil were answerable for a larger percentage of the mortality from cancer than had been generally supposed. In the English lake districts conditions of soil and local climate had been found to exist least conducive to the growth of cancer and most favorable to the lowest mortality from the disease. Haviland found that the distribution of phthisis throughout Great Britain was decidedly the reverse of that of cancer. The highest mortality districts in one map were, as a rule, represented by low mortality in the other, and where low mortalities from these two causes of death were coincident, the districts were found to be most salubrious, as indicated by their death-rates from "all causes."

W. B. Platt[9, Aug. 10] calls attention to the apparent influence of climate and season upon manifestations of normal and abnormal nervous activity. Chorea is more common in cool than in warm climates, and in the spring months. Infantile paralysis is more frequent in summer, and suicide is more frequent in April, May, and June than in any other quarter of the year. Neurasthenia follows the same rule.

E. O. Otis[99, July 25] has given attention to the psychological factors in selecting a climate for invalids. The following points ought to be considered: 1. The temperament and mental disposition. 2. Previous habits and mode of life. 3. The amount of physical activity the patient has been accustomed to. 4. The matter of domestic ties. 5. Is the patient to be placed in an environment of invalidism, where he will have his malady suggested to him continually by seeing others sick and dying with it about him? 6. The age of the individual.

All these points require consideration. The question under 5 deserves more attention than is usually given it. Kretschmar, as shown elsewhere, answers it in the affirmative, premising that careful medical supervision be had over the patient as well as his environment. Otis leaves the question unanswered, but seems inclined to answer it negatively.

A. Ladendorf[1113] has made a profound study of mountain climate in its meteorological, physiological, and therapeutic relations. The first part thus far issued is devoted to the meteorological characters of climates of altitude. The brochure contains nothing particularly new, but the author has brought together many facts from various sources. Prim[1114] has written an ambitious work, crowned by the Medico-Chirurgical Academy of Barcelona. It is divided into two parts, the first treating of phthisis and climate and the second of the health resorts of Spain and the Balearic and Canary Islands. The work shows wide reading, and is a praiseworthy attempt to render the Spanish health resorts better known to the profession.

An editorial article$^{61}_{\text{May } 11}$ calls attention to the modifications produced in various diseases by climatic conditions. While such modifications undoubtedly occur, I think they are not nearly so pronounced as is assumed by the writer of the article. Too much importance is attributed to malaria as a complicating influence. Careful study of surgical and puerperal cases will show that the assumed malarial complication is often septic in character. That quinine relieves the atypical symptoms is not necessarily evidence that they are malarial.

De Pietra Santa, of Paris, France, corresponding editor, deprecates the vague and indefinite character of much of the current writing upon medical climatology and climato-therapy. This eminent sanitarian and climatologist holds that it is possible at the present day to distinctly define the specific climates suitable to specific cases. Thus, mountain climates may be classified as mild, tonic, and stimulant. On the other hand, patients (or diseases) may be classified as torpid and erethic. For the torpid class of cases, tonic and stimulant climates are indicated; for the erethic, the mild or tonic climates. But de Pietra Santa goes farther, and says that certain health stations may themselves possess different characteristics at different parts of the same station or locality. Here the topography, elevation, exposure to land or sea breezes are determining factors.

Roland G. Curtin $\frac{9}{\text{Aug. 30}}$ has an excellent essay on the climatology of hæmoptysis in chronic lung disease. He discusses first the climatic conditions causative of hæmoptysis and then those which may be regarded as preventive and curative. The climatic elements causative of bleeding from the lungs may be summarized as follows: *Sea-level air*, by its greater density, diminishes the tendency to hæmoptysis, but the increased arterial tension and the moisture which are usually present in such a locality more than counterbalance the beneficial effect of the support given by the air-pressure. *Salt air* has a bad effect on tubercular lung disease by hastening the breaking-down process. The effect is probably good in syphilitic lung troubles and sometimes in simple chronic inflammatory lung affections (not tuberculous). *Moist air* has a very deleterious effect by hastening the ulcerative process, as well as by liquefying the blood and secretions, and macerating the diseased surface in the lungs, thus rendering the tendency to the oozing and flowing of blood more liable. *Warm air* relaxes the tissues and blood-vessels, and enervates and relaxes the system at large. The preventive and curative elements of climate, and their mode of action, may be summed up as follows: *Rarefied air* tends to prevent hæmoptysis by arresting the ulcerative or other disease processes, and also by lowering the arterial tension. This climatic condition probably greatly overbalances the unfavorable tendency of the increased heart action and loss of support to the lungs from diminished air-pressure.

Cold air contracts the tissues and blood-vessels, thus preventing a flow of blood when a tendency to hæmoptysis exists. It is beneficial by its general invigorating effects to the system at large. *Dry air* robs the diseased structure of its moisture, decreases the fluidity of the blood, and blocks up the blood-vessels,—

all favoring the arrest and prevention of bleeding. *Aseptic air.* The purity of this variety of air favors repair and cure of the lung disease, and kills or dwarfs the action of the disease-germ. *Outdoor life*, when not associated with too much exposure, exertion, or fatigue, is beneficial. *Sunshine* is beneficial, inasmuch as it improves the general nutrition.

From the foregoing arguments we should conclude that each case should be carefully studied, in all its phases before deciding upon a change of residence. On a high mountain,—say, from 5000 to 10,000 feet (1524 to 3048 metres),—a residence far removed from the sea-coast, is best for a patient with a tendency to hæmoptysis. At a location of this kind one would probably have not only a rarefied, but also a cold, dry, aseptic air,—factors which would be most beneficial. Care should be taken that the elevation of the patient should be gradual and not too rapid, otherwise the early effects of a sudden elevation might be followed by unpleasant results. A case of syphilitic phthisis will probably be benefited by sea-air, while a tubercular patient, in all probability, would be injured by such a residence.

P. H. Kretschmar[9, Sept. 7] continues his studies upon the sanatorium treatment of consumption (see ANNUAL for 1889, vol. v, E-13). He answers objections to the treatment of phthisical cases in "a properly located and rationally conducted institution." Descriptions are given of Trudeau's Sanitarium at Saranac Lake, in the Adirondack region; the Winyah Sanitarium, conducted by Carl von Ruck, at Asheville, N. C.; the Sanitarium of Denison, at Palmer, Col., and another managed by S. E. Solly, at Colorado Springs. The "camp cure," under the supervision of a careful physician, as recommended by J. H. Sloan, of Santa Fé, N. M., is also adverted to.

CLIMATO-THERAPY.

A. L. Gihon[9, Aug. 3] writes of the therapeutic properties of ocean climate in various diseases. This paper was referred to in the ANNUAL for 1889, but had not then been published. Ocean-voyages are recommended for convalescents from protracted and exhausting diseases, various forms of nervous exhaustion, incipient pulmonary troubles, etc. The best ocean climates are found on the Azores, Madeiras, and Canaries, especially the latter, where, at Orotava, "one can bathe as well on the 31st of January, as on the

31st of July." The paper is in the author's characteristic style and will well repay perusal.

Burney Yeo[1021 Aug.] recommends sea-voyages in nervous prostration (neurasthenia), protracted convalesence, and the debility of adolescence. In consumption he regards sea-voyages as rather hurtful than beneficial. In this opinion I agree almost entirely with Yeo, although many most experienced phthisiologists dissent strongly from the writer upon this point.

HEALTH RESORTS—MARINE CLIMATES.

Wm. F. Hutchinson[138 June] contributes an interesting and chatty article on "The Island of Jamaica as a Winter Sanitarium." The temperature of the island at the sea-shore (Kingston) is equable, relative humidity above the mean (80 per cent. at 7 A.M., 69 per cent. at 3 P.M., for the year), and rainy weather usually crowded into two months, May and October. Bronchial and pulmonary complaints, rheumatism, and digestive disorders are all benefited. Practical details as to the methods of travel, expenses, etc., are given by the author. The following paragraph paints in enticing colors the sort of life the invalid has before him in this island of the tropical seas: "To eat and sleep and eat again; to drive in comfortable carriages over faultless roads or walk a little in cool morning air; to devour by dozens the famous Manchester oranges, which I consider the finest in the world; to stroll in flower-gardens amongst unknown blossoms; to sketch or paint wide landscapes or tropical bits; to visit the club-grounds and watch tennis or cricket matches for an afternoon, and to sit after dinner gazing at the glory of a tropical night as it comes swiftly on—these are one's occupations in Jamaica highlands, plus getting well. And improvement, even in advanced cases, comes with singular rapidity."

E. F. Cordell[104 Oct.] speaks highly of Atlantic City, N. J., both as a summer and winter resort. He describes the place, which is unquestionably one of the greatest sea-side resorts in America, calling attention to its accessibility, its conveniences, its excellent sanitary arrangements, and its climatic peculiarities. It is especially useful as a resort for patients suffering from malaria, nervous exhaustion, rheumatism, phthisis, and convalescence from acute diseases.

W. H. Dakeman $^{59}_{\text{Aug. 3}}$ lauds the South California coast, south of Santa Barbara, and the country for about 50 miles (80½ kilometres) inland, as desirable summer climate. Los Angeles is particularly mentioned as having all the necessary qualifications for a model summer resort, but the record shows a maximum monthly temperature of 93° to 98° F. (33.88° to 36.66° C.) from April to October. Whatever advantages are possessed in the way of an attractive summer resort by stations directly on the coast, the inland cities, except when the mountains are reached, certainly cannot boast of them.

Crespi, collaborator, $^{26}_{\text{Mar., Apr., June, Sept.}}$ writes entertainingly of many of the health resorts of England and Wales. The historical and other details given add interest to the descriptions, but lack of space prevents more extended comment upon the articles in this place. Both the editor of *Provincial Medical Journal* and Crespi are doing a commendable work in calling attention to the many excellent resorts of Great Britain.

An editorial $^{6}_{\text{June 15}}$ comments upon the health resorts of Great Britain, and gives a list of the more notable ones and their climatic peculiarities. On the east and southeast coasts are Tynemouth, Whitby, Redcar, Scarborough, Filey, Skegness, Cromer, Yarmouth, Lowestoft, Clacton, Margate, Ramsgate, and Dover; on the south coast, Folkestone, Hythe, Hastings, St. Leonard's, Eastbourne, Brighton, Worthing, Bognor, Cowes, Ryde, Ventnor, Bournemouth, Weymouth, Exmouth, Teignmouth, Torquay, Dartmouth, and Penzance; on the west coast, Rothesay, Dunoon, Grange, Blackpool, Southport, New Brighton, Rhyl, Llandudno, Barmouth, Aberystwith, Tenby, Weston-super-Mare, and Ilfracombe. All the localities on the east coast partake more or less of the same meteorological character, although differing so much in latitude, and the same rule holds of the places upon the west coast. Thus, Redcar and Scarborough have much more in common with Margate and Ramsgate than with places near their own parallel on the west coast, such as Grange or Southport. Similarly, the resorts on the south coast differ materially, according as they lie toward the east or toward the west. Speaking broadly, the east coast resorts are dry and somewhat cold, and hence bracing; whereas the west-coast resorts are relatively humid, mild, and relaxing. The rainfall on the coast of portions of Yorkshire, Lincolnshire, Norfolk, and Suffolk hardly exceeds 20 inches (51 centimetres) per annum, while in Devonshire, Cornwall, and upon the Welsh coast it often reaches 40 or 50 inches (1.02 or 1.27 metres) and in some places largely exceeds that amount. All the English coasts are somewhat windy; but there is a great difference between the dry, somewhat parching, and decidedly bracing wind which comes to the eastern coasts, across the German ocean, and the soft, rain-laden breezes of the Atlantic.

The south-coast resorts, the most patronized of all, present a wide diversity of character, which is much better explained by longitude than latitude. Thus, all the Kentish and Sussex resorts are bracing, while those of Devon and Cornwall are more or less relaxing. To sum up, the most bracing marine resorts in England are those of Durham and Yorkshire; the most relaxing are those of Devonshire and Cornwall. The resorts from the mouth of the Thames to Brighton form an intermediate class, and their popularity is easy to understand, and rests upon a solid foundation. In spas England is also very rich. Examples of sulphur-waters are found in Harrogate, Moffat, and Strathpeffer; simple thermal waters in Bath and Buxton; muriated saline waters in Droitwich, Woodhall, Leamington, and Cheltenham; and iron-waters in Tunbridge Wells, and Harrogate. The brine-baths are unsurpassed in the world; the simple thermal and earthy waters of Bath are perfect in their way; and the sulphur-springs, as at Harrogate, are excellent. The weak point of the British mineral-waters is their deficiency in carbonic-acid gas, and the absence of the saline aperient class, which makes the fortune of Carlsbad and Marienbad.

INLAND STATIONS OF MODERATE ALTITUDE.

The demonstrated benefit of the climate of Aiken, S. C., in phthisis is ascribed by W. H. Geddings[59 Dec.22,'88] to the aseptic character and dryness of the atmosphere and moderate temperature. This suggestive paper closes with these words: "My object in presenting this paper is not to underrate the usefulness of other resorts, but to prove that within thirty-six hours' ride of New York we have an antiseptic climate where consumption can be cured, its accessibility being not the least of its many advantages."

The advantages of Tallulah Falls, in Northeastern Georgia, as a health resort are recounted by P. N. de Dubocay.[207 May] The mean temperature for a year was 54.7° F. (12.61° C.), the maximum 90° F. (32.22° C.) in July, minimum 3° F. (1.61° C.) in January; and the total rain-fall 38.9 inches (9.65 millimetres). The mean relative humidity for a year was 69.3 per cent.

The climate of Western North Carolina is the subject of an interesting paper by H. O. Marcy.[43 Jan.] Statistics are given of Asheville and other places, and much information about the location of health resorts, and the convenience of travel and living in this locality is conveyed by the author, who writes as one having personal experience.

J. H. Platt[99 July 25] calls attention to the pine belt of New Jersey as beneficial in bronchial and pulmonary diseases, but offers no definite facts in support of the claim except the mortality returns of the State Board of Health.

P. C. Remondino[44 July] argues that the climate of Southern California is beneficial in renal diseases. In his experience patients with disease of the kidneys are almost uniformly improved there.

W. S. Clark[44 May] writes enthusiastically of the climate of the colony of Ontario in Southern California. Its altitude varies from 1000 to 2000 feet (304 to 608 metres). There are "northers" occasionally, but the breezes are usually pleasant, being from the sea or the mountains on the North. Rain-fall, 16 to 20 inches (406 to 508 millimetres) annually. It is beneficial in asthmatic, tubercular, dyspeptic, and neurasthenic complaints.

Hirschberg[69 May 30 to June 27] gives an interesting account of a summer vacation in Egypt. He points out the advantages of the Upper Nile region (Luxor, Esné, and Assouan) for patients with pulmonary complaints. The temperature about Luxor, from January to April, varies from an absolute minimum of 30° C. (86.6° F.) in January to a maximum of 37° C. (98.6° F.) in March. The mean relative humidity is usually under 60 per cent., and the air *feels* dry. Hirschberg comments, with characteristic German superiority, upon the national customs, accommodations, visitors, etc. The visitors are nearly all English-speaking people, three-fourths of whom are Americans. Many of these are not invalids, but sight-seers, being brought in convoys under the guidance of Cook, the tourist. The water should not be drunk without previous boiling or filtration, as little effort is made by the native authorities to keep it free from pollution. Hirschberg himself restricted himself as much as possible to Pilsener beer, of which he carried a supply, and which can be obtained in the hotels and on steamers. The climate of Upper Egypt is especially beneficial in neuroses, renal diseases, rheumatism, and phthisis. The sand and hot sun produce a conjunctival catarrh, which yields promptly to a sterilized solution of zinc sulphate, 1 to 2000. A mop of sterilized absorbent cotton was used to apply it. There is little danger of contracting the Egyptian ophthalmia if one avoids contact with infected articles. Twenty-three kilometres (15 miles) south of Cairo are the baths of Heluan. These are hot, saline sulphur-baths, and fitted with modern conveniences, and are especially indicated in inveterate syphilis, skin diseases, and rheumatism. According to Thomas Savill,[6, Nov.1] who made several trips up the Nile from Cairo, the air is dry and bracing; there is little rain, and there is a large proportion of sunny days. In January and February, 1888, rain fell on only six days. The fall of temperature after sunset is occasionally very pronounced, and the daily range is also sometimes great. The Khamseen is the most serious disadvantage of Egyptian climate. It usually begins about the middle of March. Savill also warns against drinking the Nile water without previous boiling or filtration.

MOUNTAIN STATIONS.

S. A. Fisk[9, Jan.19] gives the following *résumé* of the general characteristics of Colorado climate: (1) elevation; (2) dry air; (3) a large amount of sunshine; (4) a warm sun temperature; (5) a somewhat variable temperature: cool, not cold, in winter,—cold during a winter's night,—but comfortable at midday; (6) a moderate motion of the air, with occasional high winds; (7) a small snow- and rain-fall; (8) the absence of fogs; (9) a pure air; (10) a dry, sandy, well-drained soil. But this does not tell of the local conditions of the different resorts; of the out-of-door life; of the diet and exercise; of the home life; of ranch life;—in fact, of the various local conditions and of the means adopted to aid recovery, many of them varying from those employed elsewhere. One feature cannot be too strongly emphasized as characteristic of the Colorado cure. It is an all-year-round resort, and not simply a winter resort. It is, further, an active, growing community, and there is plenty of room for the energies of the most active when once a recovery is secured; so that a return to old methods and haunts is not to be recommended. "The State now claims a population of over 350,000 inhabitants. How many of these have come for reasons of health it would be difficult to say. Every town and every city has its large percentage of such people, who, in their persons and in the energy of their lives, are the strongest testimony that can be given to the efficacy of the Colorado climate in the arrest and cure of pulmonary disease."

Southern Alberta is in Canada West, bounded on the west by the Rocky Mountains and British Columbia, on the south by the boundary line between the United States and Canada, on the north by the Canadian Pacific Railroad, and extending east as far as Medicine Hat. It varies in elevation from 2700 to 4500 feet (820 to 1370 metres). The winter lasts from the middle of December to the end of February. There are occasional heavy snows, and, not so very rarely, the "chinook," a warm, dry wind blows across the country. This peculiar wind, that seems to have some features not exactly pleasant, is described by G. A. Kennedy[61 Sept.14] as follows: "The grand characteristic of the climate, as a whole,—that on which the weather hinges,—is the chinook wind. It blows from west to southwest, in varying degrees of strength,—from the gentle breeze that just tosses the heads of the daisies and sunflowers, to the howling gale that carries off contributions of chimneys, barrels, shingles, hats, and miscellaneous rubbish to our neighbors in Assinaboia. In winter the wind is distinctly warm; in summer, not so distinctly cool. Its approach is heralded by the massing of dark, cumulose clouds about the mountain-tops and a distant wailing and rumbling from the passes and gorges. Its effect in winter is little short of miraculous. When a *real* chinook blows, the thermometer often rises in a few hours from 20° F. (-6.7° C.) below to 40° F. (4.44° C.) above zero; the snow, which in the morning may have been a foot (31 centimetres) deep, disappears before night; everything is dripping, but before another night falls all the water is lapped up by the thirsty wind, and the prairie is so dry that a horse's hoofs hardly make an impression upon it as you take your first welcome canter, after a prolonged and tedious spell of 'settin' 'round the stove.'" "Typho-malarial" or "mountain fever" seems to be prevalent. The atmosphere is declared to be dry and aseptic, the scenery fine, and the opportunities for an outdoor life almost unlimited.

H. D. Niles[59, May 18] calls attention to the sanitary advantages of Salt Lake City. The air is dry (relative humidity 45 per cent.); the altitude high (4000 to 8000 feet—1200 to 2400 metres, as the city itself or the contiguous mountain-slopes are adopted as a place of residence); about three-fourths of the year the days are clear or fair, light winds, temperature cool and moderately equable at the different seasons; the average daily range in eleven years varied from 13.1° to 23.6° F. (5.66° to 10.44° C.). The rain-fall is small, being 16.94 inches (406 millimetres) per year. There are also saline- and sulphur- baths in the waters of the lake and in numerous mineral-springs.

At Davos[6, July 20] the ingenuity of the physicians and hotel-managers have been taxed to devise means of amusement for the many invalids congregated at that popular winter resort for consumptives. Outdoor amusements and exercises are, of course, most important, and among these tobogganing seems to be easily first. Next to tobogganing comes skating, and, for those who cannot or care not to indulge in these somewhat violent exercises, mountain-climbing and amateur photography are still in reserve. Among the indoor amusements and distractions are an English and German library, a gymnasium, an English literary society, with frequent meetings, organ recitals, balls, and theatrical entertainments. The last two are likely oftener to be injurious than of benefit. Last winter the number of visitors to Davos was about 1400. The large majority are Germans and English, followed in order by the Swiss, Dutch, French, Americans, and Russians.

Wm. Ewart writes enthusiastically of Aros, a newly-discovered Alpine winter resort, about 15 kilometres (9½ miles) from Davos. It is about 6000 feet (1830 metres) above sea-level, well protected against the northerly winds, and, although only open to invalids six years ago, a sanatorium has already been started.

Locarno, at the northern end of Lake Maggiore, near the Italian border of Switzerland, presents, according to Odermatt,[214, May 30] great advantages as a winter resort for patients with pulmonary complaints, neurotics, and gouty and rheumatic sufferers. The monthly temperature means are as follow:—

January, 2.2° C. (35.96° F.); February, 4.6° C. (40.28° F.); March, 7.2° C. (44.96° F.); April, 12.1° C. (53.74° F.); May, 15.3° C. (59.54° F.); June, 18.9° C. (66.02° F.); July, 21.4° C.

(70.34° F.); August, 20.6° C. (69.04° F.); September, 17.8° C. (64.02° F.); October, 12.0° C. (53.6° F.); November, 6.9° C. (44.6° F.); December, 3.2° C. (37.8° F.). Accommodations are good and prices reasonable.

II. BALNEOLOGY.

HYDRO-THERAPY AND GENERAL QUESTIONS IN BALNEOLOGY.

A. Frey$^{404}_{\text{No.333}}$ has investigated the physiological effects and therapeutic indications of Turkish and Russian baths. The temperature is raised both in the hot-air and the vapor baths; in the former slowly, in the latter rapidly. Under the succeeding cold baths and douches the temperature falls sometimes below the normal. The quantity of urine is diminished, the urea and uric acid increased, oxidation of nitrogenous principles is hastened, the perspiration increased, and the body-weight diminished. Innervation and all the bodily functions are exalted.

Among the therapeutic indications are the uric- and lactic- acid diatheses, plethora, corpulence, and other abnormal constitutional conditions. Caution is requisite in heart affections. Febrile diseases and degenerations of the heart-vessels (atheroma, aneurisms) are contra-indications.

Robert Baker$^{166}_{\text{July}}$ calls attention to the good results obtained from the systematic use of the Turkish bath in various insane conditions. In insanity from the abuse of alcohol and other narcotics, the partial dementia of middle or advancing life, melancholia, and puerperal insanity, the Turkish bath often acts as a curative agent. In epileptic insanity, general paresis, and as a means of general improvement in the chronic insane, the same remedy is useful as a palliative measure.

Groedel$^{41}_{\text{May 2}}$, has demonstrated that cold fresh-water baths lower farado-cutaneous sensibility and increase the galvanic and faradic irritability of nerves and muscles. Warm baths have a directly contrary effect. A strong carbonated mineral water (Nauheim) decreases both farado-cutaneous sensibility and faradic and galvanic irritability of nerves and muscles.

The after-effects of balneological treatment are convincingly stated by J. Jacob.$^{41}_{\text{Mar. 8}}$ A number of instances are cited which show apparently that the immediate effects produced by baths are not the only curative ones, but that the secondary or consecutive effects have much to do with producing the ultimate cure. He deprecates interference with the symptoms produced by the baths, and urges that the apparent bad effects should be allowed to disappear without interruption. The author says, very plausibly, that there is no more reason for considering the cessation of a morbid process, or the disappearance of its results after baths as an effect of *vis medicatrix naturæ*, than for attributing all therapeutic results to the same cause.

The application of hydro-therapy in the treatment of disease, including its technique, indications, and contra-indications, is considered by S. Baruch[760, Aug. to Nov.] in a series of articles. The facts and arguments used are summarized in a subsequent paper read before the New York Academy of Medicine.[1, Nov. 30] The effects of water upon the human body may be briefly stated as follows: The calibre of the blood-vessels can be diminished to any extent by cold water, until the coats of the vessels lose their tone altogether. Cold water acts like other irritants in producing reflex action from the central organ. Irritants excite considerable influence on the heart and vessels, and as, in proportion to the irritability of the individual, powerful cutaneous stimuli lessen or weaken cardiac action, relatively weak stimulation strengthens that action and narrows the lumen of the vessels. Changes produced by continued stimulation of the skin last sometimes after its removal, and relaxation of the pulse often follows powerful stimulation. The excitant effects of a weak cutaneous stimulation continue after its conclusion, but are also followed by a less-pronounced relaxation. Powerful cutaneous stimulation is always followed, after a period of warming, by a cooling down of the body-heat, which may last over an hour. Sometimes this occurs during stimulation, but, as a rule, not until after its cessation.

From observations made on the circulation of the rabbit trephined for the purpose, definite results of the effect of water stimuli have been arrived at. A cold stream of water applied to the belly or back of the animal is at once responded to by the blood-vessels of the pia mater, contracting them if brief, dilating them if prolonged. A warm compress applied to the belly or back contracts the vessels. Cold baths produce dilatation of the vessels in proportion to the extent of the body immersed. It is only after prolonged immersion in cold baths that a contraction of the vessels, as a result of the reduced blood temperature, takes place. Immersion of the body in warm water brings about decided contraction of the vessels of the pia mater, and they remain contracted for some time afterward. By demonstrations on man it has been found that the application of cold to certain definite parts of the surface exercises a positive influence upon definite vascular areas. It is a well-known fact that the human body is not affected by cold and heat like an inanimate body; that it reacts against the thermic stimuli. It must be remembered that the vital processes by which the system endeavors to protect itself against thermic disturbing influences are also definitely ascertained. By means of the calorimeter it has been positively demonstrated that the radiation of heat depends upon the cutaneous circulation. It has been found that during the most active condition of the skin function three and a half times more heat may be retained in the body than the average loss of heat, or that it may be increased three and a half times. As the great bulk of the heat is produced in the voluntary muscles, which form about one-half of the entire body, it follows that the increased activity of the muscles aroused by the external application of cold is capable of producing an increase of heat. In the muscular reaction produced by the warm moisture of the pack, a condition most favorable to the nutrition of the muscles is brought about. The excretion of carbon dioxide is increased by the application of cold. There is a corresponding increase in the consumption of oxygen. We are warranted in affirming as a physical law that, under the influence of cold, oxygen combustion is energized and augmented, on condition always that refrigeration does not exceed certain limits and cause depression of the rectal temperature below 30° C. (86° F.). The wet pack increases the elimination of the fluids and solids of the urine.

Baruch does not maintain that in hydro-therapy we possess a universal remedy, but that it is an indispensable auxiliary to other methods of treatment. His definition of hydro-therapy is "the utilization of water at any temperature, internally or externally, for the treatment of disease." He does not say for *the cure* of disease. He hopes by this definition to emancipate it from hydropathy, or "cold-water cure." In dyspepsia and gastro-intestinal diseases water has been used with great success. By removing the products of fermentation and cleansing the mucous membrane, it restores tone and vigor to the gastric lining and enables the natural forces to come into play. Another class of cases which offer a broad field for the employment of hydro-therapy is that to which belong neurasthenia and other nervous diseases,—rheumatism, gout, anæmia and chlorosis, obesity, and scrofula. In these cases the benefit derived from the application of water seems to be produced by an increase in assimilative processes and in nutritive and tissue changes. He divides neurasthenia into two types—the erethetic and the true asthenic. The former is characterized by an instability of nerve forces, the latter by their enfeeblement. The former requires soothing ablutions or prolonged wet pack, followed by the half-bath, of 65° to 70° F. (18.33° to 21.11° C.), once or twice daily. The asthenic form, on the contrary, requires the stimulus from the active reaction produced by the impingement of a mass of cold water for a brief period. Under the author's observations many cases of hysteria have yielded to the tonic influence of various hydro-therapeutic procedures. In chronic constipation the results are excellent. Statistics, whose source is unimpeachable, demonstrate that the mortality of typhoid fever has been reduced from 25 per cent. to 2 per cent. by the systematic bathing under Ernest Brand's method. The author gave the histories of a number of cases which had been considered hopeless, but in which the patients were now in comparatively good health from the application of water as a remedial agent. He said that the results in the Montefiore Home for Chronic Invalids were exceedingly good considering the desperate and hopeless class of cases, and that the last report recorded 6 cured and 35 improved sufficiently to return to their homes and daily work.

In the discussion following the reading of the paper, G. A. Peabody, A. A. Smith, M. Putnam Jacobi, and G. B. Fowler, all spoke in favor of the hydro-therapeutic treatment of febrile diseases, especially of typhoid fever. The series of papers is a valuable contribution to our knowledge of hydro-therapy, and deserves careful study.

Jules Simon,[24, July 14] gives advice in regard to the hydrological treatment of diseases of children. After passing in review the indications for the internal use of the waters of Vichy, Vals, Casset, Pougues, Chatelguyon, and Alet, he dwells upon the usefulness of sea-water baths, especially in scrofulous subjects. The principal affections in which salt-water baths are useful are glandular scrofula, white swellings, periostitis, rachitis, osteo-periostitis, and caries of the bones. In addition, cases of cutaneous gummy swellings, ozæna, infantile paralysis, convalescence, and all forms of vital enfeeblement. The contra-indications to salt-water baths are extreme youth (under 2 years) as well as old age. Very nervous, excitable, and rheumatic children should not be allowed to take sea-baths. Subjects with heart disease, albuminuria, or who are suffering from some febrile affection, should be prevented from bathing in the sea. Skin, ear, and eye diseases, as well as uterine troubles in young girls, are likewise contra-indications.

The little patients should be gradually accustomed to the bath, and on no account should they be allowed to remain in the water longer than five minutes at a time.

G. Minges[61, Nov.16] has tested a considerable number (19) of American mineral waters in the bottled state to determine the bacteria present. In this connection reference may be made to the investigation of C. Reinl (ANNUAL for 1889, vol. v, E–29). Minges found that the presence of carbonic acid in the water retarded the development of micro-organisms. The subjoined table shows the results of the experiment made.

NAME OF WATER.	No. Bottles Contaminated out of 12.	No. C.cm. of CO_2 to the Gallon of Water.	Average No. Micro-organisms to 1 C.cm.
Arcadian	1	Artificial	52
Bethesda	1	Artificial	85
Congress	1	392,289	93
Salutaris	2	Original CO_2 allowed to escape, and artificial CO_2 substituted	59
Geyser	2	454,02	85
Silurian	2	Artificial	100
Buffalo Lithia	2		100
Rockbridge Alum	2		863
Hathorn	2	375,747	68,290
Empire	3	344,669	1,407
White Rock	4	Artificial	2,218
Excelsior	4	250	8,417
Manitou	5	Recharged with its own CO_2	886
Colfax	10		17,103
Henk	10	Artificial	25,000
Blue Lick	12		1,922
Columbian	12	272,06	2,973
Bethesda	12	Non-aërated	3,505
Castalian	12		40,189
Crab Orchard	12		150,000

The following is a *résumé* of the results obtained by Minges: 1. The bacteria in bottled mineral waters are probably not derived from the spring, in the majority of cases, but are due to contamination from the bottles and corks, the cleansing methods now in vogue being insufficient to destroy them. 2. Carbonic acid in a bottled mineral water has a powerful inhibitory influence on the development of germs, whether the gas is natural to the water or has been artificially generated and added to it. When the proportion of CO_2 is 350 cubic inches (5.73 litres) or more to the gallon (4 litres), the retarding influence of the gas is very great. It is much less when the proportion is only 250 cubic inches (4.09 litres) to the gallon; but among every dozen bottles of even the most highly carbonated waters there is at least one which contains more than 250 micro-organisms to every cubic centimetre (16 minims), and ten even out of twelve bottles may be thus contaminated. When the water is charged artificially some time may be given for contamination before such charging is accomplished. 3. Sulphuretted hydrogen gas, in the proportion contained in mineral waters, probably has some inhibitory influences on the development of germs, but not to the extent which might be *à priori* expected. 4. As regards freedom from bacterial contamination, most of our native carbonated mineral waters are superior, at least, to several of the most popular European waters of the same kind. 5. The non-aërated so-called table waters are probably very inferior to ordinary hydrant-water. 6. The strongly saline, non-carbonated mineral waters are so badly contaminated as to be wholly unfit for internal administration in the form in which they are at present put up, unless the germs are previously destroyed by heating (for two hours at 70° C.—158° F.—Reinl). 7. In order to bottle, at least, a non-carbonated mineral water in such a way that it will remain bacteriologically pure for an indefinite period, the bottles should first be boiled or steamed, kept in an inverted position in a place free from dust until cool, then immediately filled and closed with boiled corks.

The Committee on Mineral Waters appointed by the American Climatological Association made a report at the Washington meeting in 1888.[59, June 16] From this it appears that scientific balneology is still an altogether uncultivated field in this country. The labors of the committee have resulted simply in showing how little we know of the composition, physiological effects, or therapeutic virtues of our many and varied mineral waters. The committee urges legislation to compel the analysis of all mineral waters which are used medicinally. I think that it is, besides, desirable to have official inspection under State control of all watering places, as already recommended in the ANNUAL for 1888. It is a good indication of the future that such an influential committee as that of the association named has taken the matter earnestly in hand. The following recommendations are made by the committee: "A committee must be formed composed of one, or perhaps two, members from each State. The committee should print letters of inquiry and record-blanks covering not only physiological action and clinical observation, but they should also include the signal-service reports as to temperature, humidity, rain-fall, sunshine, etc. These record-blanks should be as simple as possible, so that they could be filled out with the least possible trouble. The resident physician of the largest experience should be addressed by the member of the committee from his State, and he should be requested to make monthly reports during the 'season.' Most resident physicians would probably comply readily with such a request. The hope of the proper recognition of the therapeutic value of the mineral spring would be a sufficient reward to the resident physician, and such recognition would increase his reputation and income. The association needs also to look after the matter of the chemical analysis of American mineral waters. The recommendations of the committee deserve careful consideration, and, if carried out, will result in great good to American balneology."

The Royal Medical and Chirurgical Society of England has appointed a committee to inquire into the medical climatology and balneology of the British Isles.$^{2}_{\text{May 18, 25}}$ The president said that patients are frequently sent long and fatiguing journeys to foreign spas for relief of maladies which, there was some strong reason to believe, might be treated in England equally well, and at much less expense than when some foreign health resort was visited. The same may with justice be said of American resorts, and especially of American mineral springs.

E. Ludwig$^{8}_{\text{Jan. 24 to Aug. 8}}$ has made an official examination of the mineral springs of Bosnia for the Austro-Hungarian government. He found thirty-two springs, which he classifies into saline, chalybeate, arsenical, iodic, sulphur, and thermal waters. The analyses of the various waters are given *in extenso* in the publication mentioned. C. Denison[9, Sept. 14] gives an excellent account of the mineral springs of Colorado. There is a collection of mineral springs, iron, sulphur, and thermal, in Routte County, about 180 miles (290 kilometres) from Denver, known as the Steam-boat Springs. Other springs are the Siloam Springs, a thermal spring containing 1060 parts of mineral matter, principally chloride of sodium, sulphate of calcium, chloride of magnesium, and bicarbonate of calcium in 100,000. The temperature is 103° F. (39.46° C.). In Boulder County are found the Seltzer Springs, containing sulphate of soda and carbonate of calcium in considerable proportions, and strongly impregnated with carbonic acid. Idaho Springs, 35 miles (56 kilometres) from Denver, has already reached considerable prominence as a thermal station. There are several springs here: the drinking spring and bath spring. The former is an alkaline chalybeate spring of a temperature of 85° to 90° F. (29.44° to 32.22° C.). The cave and tunnel springs are bath springs varying from 100° to 110° F. (37.77° to 43.33° C.). Denison adds interesting data of the climatic conditions at Idaho Springs. The climate is stimulating and tonic. The temperature, winter and summer, is somewhat lower than at Denver. It is 7500 feet (2500 metres) above sea-level,—a fact to be taken into account before advising patients with cardiac or renal diseases to resort to these springs. The mineral waters in the Yellowstone Park have lately been studied by F. A. Gooch and J. E. Whitefield.[1146, No. 47] The constituents as well as the temperature of the waters vary widely. Silica, lithia, arsenic, and the earthy carbonates, sulphates, and chlorides are generally present. Iron, iodine, sulphur, and bromine are quite generally absent.

J. E. Blomfield[22, Dec. 19, '88] describes the various hot springs of New Zealand. These are *Waiwera*, near Auckland (saline spring, 96° F.—35.55° C.); *Te Aroha*, eight hours by rail from Auckland (alkaline spring, varying from 86° to 119° F.—30° to 48.33° C.); and *Rotorua*, a collection of springs having very varied composition and physical characteristics. They are classified by Ginder, resident superintendent, into saline, alkaline, alkaline siliceous, sulphurous, acidic, saline aciduous chalybeate, and boracic. The temperature of the various springs varies from 98° to 196° F. (37° to 91° C.).

P. K. Pel, of Amsterdam, Holland, corresponding editor, reports the discovery of an iron spring near Haarlem, Holland. It yields a good supply at a temperature of 11° C. (51.8° F.), and is a saline chalybeate water of great strength. Measures are under way to erect a "kurhaus" at the spring.

L. D. Bulkley[61, Nov. 2] doubts that any therapeutic effect is derived from mineral waters in diseases of the skin. Most good effects produced from residence at a water-cure are due to change of life and scene, rest, hope and faith in the water, and the coincident administration of other medicines, as illustrated in the treatment of syphilis at the Arkansas hot springs. "But in many cases it is the water, pure and simple, which contributes most to the cure." Most of the waters have little effect upon the skin, but reach especially the kidneys, liver, bowels, etc. We cannot always predict the effect of the water from its chemical analysis. Certain mineral waters are taken hot at the springs, but cold, or even in ice, when at a distance. In the case of iron, arsenic, and bromine springs, the results are rather indefinite. Sometimes cutaneous diseases depending on debility will be improved. We have all seen cases of eczema which have been treated at the sulphur springs in vain. Where there is a rheumatic element back of the cutaneous lesion, no doubt some good can be received; but in those cases it is the alkaline water, and not the sulphur, which is of benefit.

Like all other remedies, the use of springs must be carefully prescribed in order to be of the greatest use. Probably more benefit is derived in eczema than in other diseases, and even then it should be toward the close of the case. The alkaline and moderately purgative waters should first be used, and then a tonic course. Carlsbad is advisable where there is a large abdominal plethora. In acute cases the hot springs should be used. Care must be taken lest acute eczema be excited by the springs, for some very severe cases have been lighted up in this manner. In psoriasis, sometimes sea-bathing is of far more benefit than the mineral springs. In syphilis little benefit follows unless other treatment is kept up. Acne will sometimes be benefited somewhat, and the iron springs are better than the sulphur. The chief difficulty in the use of this treatment is the fact that these patients are not under supervision, and are apt to follow their own fancy or the guidance of the attendants at the baths.

De Pietra Santa, of Paris, France, corresponding editor, sends a report of the proceedings of the International Congress of Hydrology. Nothing especially new was brought out during the sessions of the congress. An original and suggestive paper upon "Hypothetical Combinations in Hydrology" was contributed during the year to the *Société Française d'hygiène* by F. Gautrelet. He gives several examples to show that the usual methods of noting the constituents of mineral waters are purely hypothetical and in most cases incorrect.

Kisch,[34 Feb. 26] gives a useful summary of the indications for the Marienbad peat-baths. The peat obtained at this place is strongly impregnated with iron, formic acid, succinic acid, and other products of organic decomposition. A peat-bath acts by its constant temperature and mechanical as well as chemical irritant properties upon the skin, and reflexly upon internal organs. In health, a peat-bath at a temperature of 36° to 38° C. (96° to 100.4° F.) produces moderate increase of temperature, pulse, blood-pressure, respiration, and perspiration. The quantity of urine excreted is not changed, but the urea is increased. If taken at the menstrual period the flow is increased. The diseases in which peat-baths are indicated are: neuralgias, especially in anæmic conditions; paralyses, particularly rheumatic, gouty, and traumatic pareses; chronic rheumatism; traumatic exudations; pelvic exudations in women; chronic metritis and endometritis; amenorrhœa and dysmenorrhœa; spermatorrhœa and impotence; anæmia, chlorosis, scrofulosis, and syphilis. In chronic diseases of the abdominal viscera and in a number of non-irritative skin diseases the peat-baths are also useful, especially as adjuvants to other rational measures.

Lieber and Mohr,[118 May 26, June 2] Kraus,[341 No. 28] Loiman,[116 Apr.] and Jacob[4 July 22] have also studied the effects of the peat-baths, and the salts extracted from the mineral peat of Franzensbad. The last-named authors deny any or but slight virtues to the saline constituents, ascribing the effect entirely to the physical qualities (temperature, friction, etc.) of the peat- or mud- bath, while the others claim to have demonstrated experimentally that the salts or "extract" of the peat, dissolved in warm water, is equally as effective as the peat-bath. The question seems to be at present still *sub judice*.

Kleinwächter[84 Aug. 4] treats pelvic exudations in women with baths of "peat-extract," ½ to 1 kilogramme (1 to 2 pounds) to the bath, combined with the internal use of chalybeate waters.

SPECIAL BALNEO-THERAPEUTICS.

L. Lehmann[69, July 11] has investigated the solvent powers of some earthy mineral waters upon uric acid. He found that Contrexéville and Wildungen promoted the excretion of uric acid to a large degree, hence their value in gout and rheumatism. Calcium and magnesium carbonates in substance had a similar effect. This indicates that the therapeutic value of the waters mentioned is due to the presence of earthy carbonates.

One of the most popular watering places in the south of Europe is Marienbad, in Bohemia. Dobieszewski[293, Aug., Sept.] has lately reviewed the various waters and their therapeutic indications, of which the following is a summary. The springs are five in number, viz.: (1) sulphate-of-soda spring, containing a remarkable quantity of that salt; (2) ferruginous spring; (3) a chloride- and bicarbonate-of-soda spring; (4) a bicarbonate-of-calcium spring; (5) a spring containing carbonic-acid gas. As regards their therapeutic properties, the *sulphate-of-soda* springs are indicated in all conditions due to enfeebled venous circulation; diseases of the heart, especially the dilatation of the right ventricle, accompanying mitral regurgitation; morbid conditions of the liver, the spleen, kidneys, the brain, the eye, etc., due to venous stasis; also hæmorrhoids and passive hæmorrhages. By increasing absorption in the body these springs are useful in removing pleuritic or peritoneal exudations or effusions; also to remove excess of fat in obesity. They are efficacious in cases of rheumatism, gout, certain diseases of the digestive tract, amenorrhœa, leucorrhœa, indurations of the uterus and ovaries, and perimetric exudations. Finally, they are extremely useful in malaria. The *ferruginous waters* are useful in chlorosis and anæmia. The third class resemble the first, but also produce overexcitement of the nervous system. The fourth class is an excellent remedy in cases of gravel and renal calculus. The fifth class contain only large quantities of carbonic acid, and have no special action. Dobieszewski treats at Marienbad passive hæmorrhages of the rectum, the lungs, and the uterus, using the sulphate-of-soda spring in doses of 120 grammes (3 ounces 7 drachms) once or twice a day, with 60 grammes (1 ounce 7 drachms) of warm whey; in obstinate piles he also uses sitz-baths (from 21° to 15° C.—69.8° to 59° F.) and compresses of iced water. The waters of Marienbad are also useful in certain cases of metrorrhagia and in losses of blood after the menopause. The results obtained in passive hæmorrhages are explained by the relief of the venous stasis and acceleration of the arterial circulation; while, at the same time, the blood-pressure is diminished in the veins, thus retarding ruptures of those vessels. By researches in the Paris hospitals the author shows that the soda-sulphate waters diminish the amount of urea in the urine, and also restrict the daily variations in the urea excretions, for some days after ceasing to take the water. The appetite is sharpened and the evacuations are much more regular. A special property of the Marienbad springs is their influence on the liver, all cases of enlargement diminishing after fourteen days' use of the waters, congestion disappearing from the portal vein and its branches.

E. H. Kisch,[41, May 28] after stating that many neuroses, *e.g.*, palpitation of the heart, hemicrania, sciatica, intercostal and lumbo-abdominal neuralgia, ovaralgia, and even trigeminal neuralgias are often due to chronic constipation, calls attention to the success attending the treatment of these forms of nervous derangement at the Marienbad springs. The use of the purgative waters was combined with saline baths, mud cataplasms, and cold douches.

Mazzotti[472, V.22; 84, Aug.3] recommends cold-water douches, lavements, and frictions in scurvy. The more chronic and uncomplicated cases are the most appropriate for the cold-water cure. In the milder cases from 15 to 20 douches are sufficient for a cure, while in the more severe ones from 50 to 60 are requisite. The explanation of the action of the baths in scurvy is a rational one. By their stimulating effect they relieve the atony of the vasomotor system, heighten the vascular tone, and increase the peripheral circulation, thus relieving the passive hyperæmias and removing their injurious consequences.

The waters of Strathpeffer, Scotland, are of two kinds, sulphurous and chalybeate, and there are facilities for giving douches and mud-baths. Wm. Bruce,[15, June] gives the following cases as the most suitable for treatment: Rheumatism and rheumatic gout in their various forms, including sciatica and stiffness of the joints; skin diseases, especially if associated with the gouty diathesis;

dyspepsia and torpor of the liver, gravel, anæmia, amenorrhœa, and uterine catarrh. Renal and cardiac diseases, phthisis, and asthma are contra-indications. The season lasts from June to September.

Douglas Kerr[2, May 25] advises a course of thermal treatment at Bath in some cases of rheumatism, after the acute symptoms have subsided or been removed by treatment. The following symptoms indicate the class of cases to which Kerr refers. They must be familiar to every one who has had much practice among rheumatic subjects: "Slight exacerbations and remissions of temperature take place, the range being 99° to 101° F. (37.22° to 38.33° C.). The patient's strength wanes. Subacute inflammatory attacks occur, first in the neighborhood of one joint, then of another, accompanied by pain and thickening of the tissues, the finger-joints being the most frequently attacked. One form of drug treatment after another is tried in vain. The patient seems to have reached a condition in which the system refuses to respond to the action of medicines." In these cases the combination of the hot baths with the internal use of the waters give highly satisfactory results.

S. LeClercq[1, Mar.], discusses the influence of Carlsbad water upon the excretion of uric acid. He remarked that, while for many years the value of these waters had been recognized in the treatment of gout, no definite statement had been put forward as to what cases they were likely to be of benefit in and in what not. He had made careful experiments on himself to determine whether, as had been supposed, the secretion of uric acid was lessened by drinking freely of the water. With a uniform diet, and taking increasing doses of the water, he had found the amount of uric acid unaltered, as compared with the amount noted in the five weeks previous to taking the Carlsbad water. He had found that on a fixed diet the daily amount of uric acid, nevertheless, varied. Niemeyer had stated that this variation depended on unknown changes of action in the internal economy. He believed that in the future the influence of any drug on the production of uric acid would be found to have no special relation to its value in the treatment of gout. Also, our theories as to the nature of gout and the action of Carlsbad salts must both change. He had found Carlsbad water acting in several ways, some of which were:

1. The condition of the patient was improved through its causing the production of better blood (without any solution or dissipation of the tophi). The taking of warm water of itself acted favorably by diluting the fluids and washing out the channels of the body. 2. In certain cases the gouty diathesis was not perceptibly modified. 3. In other cases the water did seem to lessen the synthetic formation of uric acid. 4. It often acted on other anomalies of function and improved the general health. The digestion was in some cases improved, or deleterious by-products were taken up and excreted more rapidly. Perhaps the topical effect of the water on the stomach explained much of the benefit obtained. The exercise, bathing, pure air, and change of surroundings also must exert considerable influence on the peristalsis and circulation, and thus increase the general tone of the body.

Emil Pfeiffer,[4, July 1] writes of the indications for the use of the drinking spring at Wiesbaden. Heretofore the hydrological treatment at Wiesbaden has been principally restricted to baths, with the internal use of the water as an accessory. Since, however, a company has been formed to send the bottled water of the "*Kochbrunnen*," or the salts obtained by its evaporation, in all directions, excellent results have been obtained from its internal or local use. Among the most prominent conditions in which the water is useful are chronic nasal and pharyngeal catarrhs. The water is heated and used as a douche or spray. In the catarrhs of strumous children the effects are often very marked. In catarrhs of the larynx, trachea, and bronchi, the drinking of the water, heated to 50° to 60° C. (122° to 140° F.), three times a day, in doses of 200 to 250 cubic centimetres (6 to 8 ounces), gives excellent results. Chronic gastric catarrh, especially in anæmic or weakly persons, gastric ulcer, dilatation of the stomach, and chronic diarrhœas yield to the systematic employment of this water. The length of a "cure" is usually from four to six weeks.

The waters of Néris-les-Bains, according to Morice,[188, July 28] are useful in nervous, rheumatic, and female affections. In the first class may be mentioned paralyses of various kinds, locomotor ataxia, neuralgias, general neuroses, as hysteria, chorea, exophthalmic goitre, paralysis agitans, and epilepsy; in the second class, acute and chronic articular rheumatism, myalgias, and rheumatic gout. Among the diseases of women in which these waters are especially applicable are chronic metritis, affections of the uterine appendages, neuralgic affections, and functional disorders (amenorrhœa, dysmenorrhœa, etc). Paul Rodet,$^{24}_{\text{June 30}}$ gives gout, gravel, oxaluria, corpulence, biliary lithiasis, and diabetes as proper indications for the employment of the water of Vittel as a remedial measure. These diseases are all manifestations of defective nutrition, and this water acts especially by an increase or regulation of the nutritive functions.

A. Manquat$^{248}_{\text{Mar., Apr.}}$ has a very thorough article upon the thermal station of Hammam-R'hira in Egypt. The results in 653 cases treated by the baths are given in an elaborate table, summarized as follows:—

Unimproved,	211 cases.
Improved,	374 "
Cured,	50 "
Aggravated,	18 "

The classes of cases in which the greatest proportional improvement followed were traumatic affections of bones and joints, rheumatic affections, and diseases of the skin.

Staub$^{168}_{\text{Jan. 1}}$ gives an account of the physical, chemical, physiological, and therapeutical properties of the springs of Ribeauville. The water belongs to the class of salines represented by the springs of Contrexéville and Wildungen. It is particularly useful in affections of the urinary passages, vesical or renal catarrh, prostatic or urethral disorders, gravel, gout, and rheumatism. It is also used with good effect in digestive derangements and analogous affections. In the form of baths it relieves irritability of the skin.

G. Adams$^{80}_{\text{Jan.}}$ gives a brief account, together with a reputed analysis of the "Arkansas Lithia Spring." This spring is in the southwestern part of Arkansas, near the Texas State line. The water has an amber color, with sulphurous odor and unpalatable taste at first. The effects are markedly diuretic and aperient. It has considerable local reputation in renal disorders, but has not yet been subjected to any scientific investigation.

MEDICAL DEMOGRAPHY.

By ALBERT L. GIHON, A.M., M.D.,
UNITED STATES NAVY.

THE preponderance of papers on demographic topics during the past year has been by French authors, notably Chervin, Bertillon, de Pietra Santa (corresponding editor of the ANNUAL), Clément, Levasseur, Mireur, Dumont, and Variot, who have been industriously analyzing and developing the returns of the census enumeration of 1886 and that of the later date of 1888, while the registration reports of Great Britain and Ireland for 1888 have furnished occasion for similar analyses by British writers.

As the year closes, Billings, in anticipation of his work in connection with the census of 1890, reviews in the Cartwright lectures$^{9}_{\text{Nov.23}}$ the scope and methods of vital and medical statistics, using the designation to correspond almost precisely to the French term *dêmographie* and the German *demologie*, and defining its object to be "to classify and arrange the facts relating to the quantity and character of human life under different circumstances, for the purpose of determining the effect upon it of each of these circumstances taken singly, or of two or more of them acting together, the results thus obtained forming an important part of the scientific foundations of sociology, political economy, and preventive medicine." According to Körösi's definition, it is the science of the physical life of human society. It is, consequently, as was set forth in this department of the ANNUAL for 1888 (vol. v, p. 166), concerned with the study of vital phenomena among masses of men,—not with those of individuals,—and its deductions are based on the accumulated facts of various countries for long periods of time. Each census indicates the state of a certain population at a given date, and the vital statistics of a people is based on the deductions from successive censuses of that people, which, when generalized from comparisons of similar data of other countries, constitute the principles of the science of demography.

In this broad field of investigation very little of precise information has yet been acquired, while the restricted chapter of purely medical demography has scarcely become the subject of systematic study. In the matter of medical statistics especially Billings sets forth the errors to be avoided and the practical aims to be accomplished, cautioning against blind dependence upon unsupported numerical exhibits.

Census enumerations, from which the data of vital statistics are derived, were made in the biblical times of Moses (1490 B.C.) and David (1017 B.C.), and by classical Greece and Rome in the sixth and seventh centuries before the Christian era. In modern times Sweden was the first country to make a count (1749), but not until nearly forty years ago (1851) did even the English census embrace the facts as to age, sex, nativity, and occupation, which are essential parts of vital statistical returns; and only within the present decade has there been a satisfactory agreement among statisticians as to the really material lines of inquiry. The handful of units manipulated by some zealous individual, or the tabulation of returns from this or that city, now go into the caldron of the State, to be mingled with thousands of others to appear as a national product, and as such to be compared with like outcomings from other nations. The percentages of a while ago became permillages, and later estimates were framed with ten thousand as denominator. Still more recent calculations have been based upon populations of one hundred thousand, and others yet consider rates per million as necessary to give correct ideas, especially of disease prevalence.

Without actual determined concert among nations in making census enumerations and statistical registrations, a practical agreement is coming about through example and reciprocal influence of published results, and, though much of the labor displayed by French demographers especially may be considered useless or superfluous, it is in the light of tentative efforts, which will ultimate in the establishment of definite topics of investigation. Billings has done timely service, before the census of 1890 is undertaken, in calling attention to the vital questions to be solved, and indicating the directions which it is wasted time to follow. It is proposed in the coming census to classify the population of small areas by age as well as by sex, color, and occupation, and, where possible, to select well-defined unit areas for statistical study, in which uniformity of race, habits, social condition, and external influences shall prevail. A further necessary preliminary is an accurate understanding of the terms that have been made technical in demographic study. *Mortality*, *mortality-rate*, or *death-rate* is the ratio between the number of deaths occurring and the number of living population furnishing these deaths, as expressed by the formula $M = \frac{D}{P}$. Similarly, *nativity*, or *birth-rate*, is the ratio of the number of births to the population in which they occur, $N = \frac{B}{P}$. The death-rate, or mortality, is the ratio between quantity of life and loss of life. The usual method of indicating the birth-rate is by giving the proportion of births to thousand of population of all ages, but associated with this should always be the computation of the number of births to the number of women, between the ages of 15 and 50 or 55, living in the community. A matter of chief concern is how to obtain accurate death returns. Manifestly, no dependence can be placed upon voluntary returns by physicians, nor upon their compulsory requirement in the absence of a stringent penalty for non-compliance. Experience has shown that the only feasible way of securing an exact registration of deaths is to forbid burial until a permit has been granted from a central office, as is done in England and the United States, or on the certificate of a physician setting forth the cause of death, and this verified by state or national officers appointed for the purpose, as in France, Austria, and Belgium.

Life Tables are designed to answer the question: "Of a million children born, how many of each sex die at each age?" or, "What is the time which a man or woman of a given age may be expected to live?" The term, *Expectation of Life*, $\frac{9}{\text{Dec.4}}$ should be used only in the sense of the mean after-lifetime; that is, the average number of years which persons at any given age in a given place may expect to live. It is often confused with the "*probable duration of life*," which is the age at which a certain number of newborn children will be reduced one-half, so that for any one of these children it is an equal chance as to whether it will die before or after that age. The best test of sanitary condition, and the one most generally employed in this country, is the proportion of the number of deaths of children under 5 to the whole number of deaths, but the error ought not to be made of comparing cities in which the infant population is greatly different, or in which the social conditions and manner of life are unlike, the children of the very poor, for example, dying in relatively greater number. Another test is the *mean age at death*, which is the quotient of the sum of the ages of different individuals at death, divided by the total number of deaths. This, too, is only useful when the age and sex of the different populations are the same. The *Lancet*[6] criticises Corfield's use of the term, *mean duration of life*, as incorrect, as it describes only the mean age of persons dying in the district, and states that mathematicians and vital statisticians signify by it the mean number of years lived by a population traced by the Life-Table method from birth to death. There is scarcely a more fatal fallacy in the treatment of mortality statistics than that which deals with the mean age at death in a population as if it were the true mean duration of life, depending, as it does, more on the proportional age distribution than upon its health condition.

The magnitude and cost of a careful enumeration have determined most countries to make a decennial census. In France and Germany the census is quinquennial, and the shorter period is the more desirable, as mortality and birth rates calculated on estimated populations in the later years of decennial intercensal periods have been found, by subsequent official counts, to be very wide from the truth. For nineteen years a census was taken annually in Upper Canada (Province of Ontario), but the mechanical difficulties in the way of condensing and tabulating the returns caused its abandonment.

In the last census of the United States[9] attempt was made to obtain, on the schedule of living population, the number of those who, on the first day of June, 1880, were so sick or disabled as to be unable to pursue their ordinary occupations, but it is not probable that anything like complete returns of sickness will ever be obtained from any large body of the civil population. The census of 1880 showed a probable number of sick in the population over 15 years of age, among males from 7.17 to 22.7 per 1000, and among females from 8.1 to 17.5.

The greater part of the mortality statistics prior to the present century is necessarily incorrect and unreliable, being chiefly based on deaths alone, without regard to age, sex, and social conditions, which latter, in this country, are so divided as to defy exactness of tabulated detail. Losses in business, domestic bereavements, family dishonor, accident, chance, and climatological vicissitudes combine to make any scheme of mathematical precision impracticable.

Few of our own States have any systematic registration of deaths and scarcely any of births. The incompleteness of such returns in one State is set forth by T. B. Greenley, [224, June [illegible]] who, having been appointed by the State Medical Society of Kentucky to report upon the mortality and vital statistics of that State, found no one among the State officials specially charged with the specific duty of registering the returns, which, however, were of the most incomplete kind, although as important as the enumeration of the pigs or the statistics of corn and hay raised, which were as full and precise as possible. All depended upon the decennial census.

The Committee of the New York County Medical Society [59, July 18] noted the deficiency in birth returns as one of the greatest defects in our system of obtaining vital statistics. Except in five cities (New York and Brooklyn being two of these), the duty of reporting births is put on physicians and registered midwives, so that where neither of these is called in the birth is not reported.

Vital Statistics of France.—Our corresponding editor, de Pietra Santa, writes from Paris that the two most remarkable demographic studies of the year (1889) have been by E. Levasseur, of the Institute of France, and by H. Mireur, of Marseilles, both based on the declaration of Jules Rochard, before the Academy of Medicine, that the increase of the French population is diminishing in an alarming degree is unhappily too true, and the diminution is so rapid as to constitute a social danger. According to Levasseur the population of France was

in 1700 about 20 millions or 38 per centum of that of the great European powers,
" 1789 " 26 " " 27 " " " " " " " " "
" 1815 " 30 " " 20 " " " " " " " " "
" 1881 " 37 " " 13 " " " " " " " " "
" 1886 " 38 " " 10 " " " " " " " " "

Whilst England, which in 1789 counted only 12 millions of inhabitants, now has 36 millions, and Austria has risen during the same period from 18 to 39 millions, Germany from 20 to 47 millions, and Russia from 25 to 92 millions, the population of France has only gained 12 millions, figures which show the imminent danger assailing the French nationality and jeopardizing the political, military, economic, and social existence of the country.

Arthur Chervin,[208, Jour. 15] discussing the same question before the French Association for the Advancement of Sciences, presented the following table, showing the annual increase per 1000 inhabitants of the several countries of Europe during a nearly contemporaneous period of about twenty years:—

		Per 1000.
Greece,	(1861–'82),	12.61
Holland,	(1859–'83),	10.23
Denmark,	(1860–'83),	10.13
United Kingdom of Great Britain and Ireland,	(1861–'84),	9.33
England and Wales,		13.20
Scotland,		10.19
Ireland,		6.83
German Empire,	(1861–'83),	8.42
Saxony,		14.92
Prussia,		9.44
Thuringia,	(1867–'83),	8.29
Baden,		7.26
Bavaria,		7.10
Wirtemberg,		6.92
Alsace-Lorraine,	(1861–'82),	0.39
Belgium,	(1860–'83),	8.38
Austria,	(1860–'83),	7.69
Sweden,	(1860–'83),	7.69
Norway,	(1860–'80),	7.63
Portugal,	(1861–'78),	7.03
Italy,	(1861–'84),	6.99
Switzerland,	(1860–'83),	6.20
Hungary,	(1860–'80),	4.76
Spain,	(1860–'83),	3.31
France,	(1861–'81),	2.52

So that, as Rochat states, "France now only represents a tenth of the population of Europe, while two centuries ago she constituted more than a third. In fifty years, should this continue, we will form only the fifteenth and we shall have fallen to seventh rank among the little States." "It is a sad perspective," remarks Chervin, "which is revealed to us by statistics."

Three principal causes have been suggested in explanation of the slow rate of increase of French population, viz.: (1) a great mortality, (2) paucity of marriage, (3) feeble birth-rate. Statistics, however, shows that it is not due to an excess of death-rate, for, while the general mortality-rate of France is 23 per 1000, that of Holland is 25, of Prussia and the German Empire 27, of Spain and Italy 30, of Austria 31, and of Hungary 39. Nor is the explanation to be found in the small number of marriages contracted in France, the marital rate being in fact not materially different from that of other European countries, as shown by the following statement of the number of marriages occurring among 1000 unmarried women over 15 years of age, to wit:—

In Ireland,	21	In Germany,	46
" Sweden,	33	" Holland,	46
" Belgium,	36	" England,	46
" Switzerland,	36	" Italy,	47
" Greece,	39	" Demark,	47
" Norway,	39	" Hungary,	70
" France,	44		

This leaves only the hypothesis of feeble birth-rate by reason of the sparse fecundity of the marriages, and on this point, unfortunately, statistical evidence is not complete, and we are compelled to depend upon roundabout means of approximation.

To estimate the natality of legal unions, we have to compare the number of legitimate births with that of the married women of the reproductive age. The annual number of living births among 1000 women from 15 to 50 years of age is in France 102, in Ireland 114, in Belgium 127, in England 136, in Holland 137, in Spain 141, and in Prussia 150. But this furnishes only approximate results, and accordingly, in 1886, for the first time in France, if not in the whole world, an inquiry was made as to the number of children living in each family. On the 30th of May of that year the question, "How many children have you actually living?" was addressed to the head of every household,—to the husband, where there was one, or to the widowed mother,—the answer comprising the number of legitimate children actually living, present or absent, of whatever age, and the issue both of the existing union and of any previous marriage. The sources of error in these returns, indicated by Chervin, are (1) the possibility that unmarried parents, whether living in open concubinage or pretending to be married, may have replied to the question, the latter, according to Bertillon, numbering one hundred thousand in the city of Paris alone; (2) that mothers of illegitimate children may have responded as widows having children; (3) that husbands married to widows having children may not have returned the latter as their own; (4) that both husband and wife, independently of each other, may have answered the question; but the effect of all these cannot be great in view of the large number of responses, to wit, ten and a half millions.

Victor Turquan[208 Jan. 12] states that the results obtained agree in a remarkable degree with the method of ascertaining the mean number of children to the family practiced before the enumeration of 1886, by comparing the actual number of births with the number of marriages, but, as infancy pays a heavy tribute to death, the number indicating the mean fecundity of a family can only be considered as maxima. The exclusion of illegitimate children from the census return, notwithstanding their great number, was considered necessary on account of the little dependence to be placed on the answers given.

The responses received to the question as to the number of living legitimate children in each family are classified as follows:—

		In 1000 Families.
2,073,205	families had no children,	198.8
2,542,611	" " one child,	243.9
2,265,317	" " two children,	217.3
1,512,052	" " three "	145.3
936,853	" " four "	89.8
549,693	" " five "	52.7
313,400	" " six "	30.0
232,188	" " seven or more children,	22.2
10,425,321	families.	1000.0

That is to say, one family in every five has no children at all; 44¼ per centum, or nearly half the entire number, have not more than one child each; 66 per centum, or two-thirds, have not more than two; 80½ per centum, or four-fifths, not more than three; and only 5 per centum, or one-twentieth of all the families in France, have six or more children.

The comparatively regular decrease in families according to the number of offspring is in accord with what Bertillon, *chef des travaux de la Statistique Municipale*, has observed among families in Paris, where in every 1000 families there are about 400 who are childless, or have but one child, 200 who have two children, 100 who have three, 50 who have four, 24 who have five, and 11 who have six, the ratio of decrease being one-half.

More than a century ago, Mohean[1002 p.134] found, among 27,335 families, 930 having six children or more, 555 of these having six, 214 seven, 96 eight, 40 nine, 15 ten, 7 eleven, 2 twelve, and 1 thirteen. According to the data in the office of the Minister of Public Instruction, there were in 1888, among 798 families having seven children or more, 444 with seven, 194 with eight, 94 with nine, 43 with ten, 12 with eleven, 9 with twelve, 1 with thirteen, and 1 with fourteen; and, assuming the same proportion for all France, there would be 25,000 families having nine children, 2000 having thirteen, 500 having fifteen, and 100 having seventeen.

While it was not until 1886 that the actual number of children per family was enumerated, in 1856 the number of families without children was recorded and may be compared as follows:—

FAMILIES IN FRANCE HAVING NO CHILDREN. (Department of the Seine excluded.)	In 1856.		In 1886.	
	Number.	Per 1000.	Number.	Per 1000.
Heads of families married	1,106,843	155.8	1,154,829	170
" " " widowers	187,983	213.0	224,871	240
" " " widows	382,304	220.2	419,066	240
" " " divorced	. . .	. .	1,536	420
Aggregate	1,667,110	170.3	1,800,302	185

Thus showing an increase in thirty years of 15 per 1000 families which are entirely childless.

Turquan puts the average of living children for all French families at 2.07 and the general mean composition of all families at 3.79, and of those families only having children at 4.31.

Chervin $^{208}_{\text{July 13}}$ calls attention to the fact that, while the census of 1886 shows 2,073,205 families as having no living legitimate children, there has been a neglect to take into consideration the proportion of those families which may have lost children prior to the enumeration. Reference to the demographic statistics of the city of Paris, under the direction of Jacques Bertillon, shows that in the five years from 1882 to 1887, among 48,716 positive declarations taken at the death of one of the parents, 2114 families (4 per centum) had no child, and 4901, or 10 per centum, had had one or more, but had lost them all, and consequently figured in the census as having no living children. This proportion applied to the 10,225,321 families of the census enumeration will reduce the number of sterile unions to 1,030,675, or 9 per centum,—a figure which corresponds with that of other countries. Lagneau $^{10}_{\text{Dec. 13, '88}}$ places the number of absolutely sterile marriages at only 8 per centum, and believes with Chervin $^{8}_{\text{Dec. 19, '88}}$ that the proportion of families not having had children is about 12 to 13 in a hundred. The inference is left that French women are not naturally less productive than those of other races, but voluntarily limit the number of their offspring. Chervin,$^{208}_{\text{Oct. 26}}$ however, dissenting from the general belief that the limitation of the number of children is a voluntary act, demonstrates by careful comparison with the returns of the productive values of several departments of France that the degree of their wealth or poverty was perhaps the principal factor in their birth-rates. He refers to the many futile attempts to stimulate productiveness by rewards and premiums. The nearest approach to success was the individual effort of a friend who offered a premium of 100 francs in silver on the birth of each child to the mothers of families in a little commune where he passed his vacations, but who had the forethought to pay only half the sum at the birth of the child and the balance at the end of the year, the result being that mothers carefully watched their children during the first year of their lives so carefully that lessened mortality showed its effects on the population.

Lébé$^{208}_{\text{July}}$, reports to the Academy of Medicine the mortality here tabulated of the infants born in Paris and sent to the country to be reared, showing that the death-rate has been notably diminished, especially among nurslings:—

INFANTS 1 TO 15 DAYS OLD.	Number.	Taken away before end of First Year.	Remaining.	Died.	Living at end of the First Year.
Given to wet nurses	1729	. . . .	. . . .	. . . .	705.5
Legitimate	1241	401	840	229	
Illegitimate	488	167	321	113	
Raised by hand	1831	. . . .	. . . .	. . . .	521.5
Legitimate	1487	297	1190	525	
Illegitimate	344	. . . .	. . . .	209	

In view of the large number, 24 per centum, of deaths from diseases of the nervous system among the 4925 children under surveillance in Paris and its environs, during 1887, by the provisions of the Loi Rousel, second only to the mortality from diseases of the digestive apparatus (38 per centum), and of the fact of the numerical increase in deaths from nervous diseases, year by year, Blache$^{3}_{\text{Feb.}}$, suggests a possible correlation between the steady and signal increase in the number of insane, and especially of those from alcoholic intemperance.

Landouzy, at the Seventh International Congress of Hygiene and Demography at Paris, 1889,[3 Aug. 14] secured the adoption of propositions that a uniform system of statistics of infant mortality be everywhere established and include the fullest details, that instruction in the care of children be encouraged and the hours of work of mothers diminished. In Sweden and Norway mortality among children is very low, owing to the agricultural habits of the people, the fact that alcoholism is unknown, and that women nurse their own children. The proposition of Laget was adopted, that all children attacked with phthisis pulmonalis should be subjected to prophylactic measures or medical supervision.

Pietra Santa quotes Mireur as stating that the birth-rate, which from 1800 to 1810 was 32.3 in France, has fallen to 24.6 from 1880 to 1885, and that the mortality-rate in the same period has fallen from 28.4 to 22.4, being actually lower than the mean for other European States, which is 26.2; so that it is less the number of deaths which is to be deplored than of births, these being for Europe 34.3 and for France only 24.6, or 9.7 per 1000 less. Hence, while other European nations grow at the rate of 8 per 1000, France only gains 2 per 1000, the only remedy for which Mireur finds in sound political economy based on moral and social considerations.

Georges Michet sums[2 Sept. 14] the result of the census of 1888 for France in a few words—diminution of marriages, augmentation of divorces, decrease of legitimate births, increase of illegitimate births, excess of births over deaths in forty-four departments, the eight departments showing marked increase having only gained it by immigration. These progressive changes are here shown:—

	1847-'60.	1884.	1885.	1886.	1887.	1888.	Per 1000.
Marriages . . .	285,568			284,208	277,060	276,848	7.2
Divorces				2,950	3,636	4,708	
Births		937,758	924,558	912,838	899,333	882,639	23.1
Deaths					842,852	837,867	21.9
Excess of births over deaths .					56,481	44,772	

The marriage-rate[152 Sept. 15] is 7.2 per 1000 instead of 7.5 for recent years; that is, 1 marriage for every 139 inhabitants, or 1 for every 42 unmarried persons. Each diminution in the number of marriages corresponds to a nearly three times greater loss in number of births. Foreigners represent 3 per centum of the entire population and 14,573 marriages, resulting in 29,000 births, have been contracted between themselves or with the French. The divorces in 1888 were 1 to every 1585 families in all France, or 1 in 419 in the Department of the Seine. The excess of births over deaths was 44,772, one-fourth of which occurred among the foreign residents.

The diminished mortality in infant life and the greater mean duration of life have enabled France, notwithstanding the feeble general fecundity, to maintain a regular, though very slow, increase of population, but the admission must be made that the large accession of natural births materially contributed to this result. The proportion of illegitimates has risen from 75 per 1000 in 1881 to 80 in 1885, and to 85 in 1888, but the ratio is not the same in all parts of France.[212 Oct.] In Brittany it is only from 20 to 30 per 1000, in the Northern Departments from 100 to 130, while in the Department of the Seine (Paris) it is 250, or one-fourth of the entire number born. There is a corresponding increase in natural births among foreign residents, these amounting to 70 per 1000 births among Spaniards, 110 among Italians, 130 among Belgians, 160 among English, 170 among Swiss, and 240 among Germans. In the city of Paris alone the numbers are given as 210 per 1000 for Swiss residents, 330 for Germans, and 380 for English.

The fifty-first annual report of the registrar-general of the vital statistics of England and Wales for 1888 shows that the year was remarkable for low rates of marriages, births, and deaths, these being respectively 14.2 (the lowest previous marriage-rate having been 14.1 in 1886), 30.6 (the lowest birth-rate since the first year of civil registration in 1838), and 17.8 (which was by far the lowest death-rate as yet recorded). Undoubtedly these reductions were partly attributable to the overestimate of the population of England and Wales based on the last previous census, eight years ago; but even with this correction the rates indicate a real abatement in mortality, implying improved health and increased longevity. The mean annual death-rate for the last eight years was 19.05, while the corresponding mean rate in the last completed decennium was 21.38; in other words, the mortality in the last eight years has been 11 per centum lower than in the preceding ten.

Overpopulation.—While French demographers are deploring their feeble national birth-rate, English writers are speculating upon the means of bringing about that very result in their own country. W. T. Greene[22 May 16] says that "in France an apparently satisfactory solution of the problem has been reached," and from the fact that the professional classes in that country, lawyers and doctors of medicine, were found by the census of 1865 not to have above an average of 1.74 children to a family, he infers that the French nation had acquired the power of proportioning the number of annual births to the requirements of the parents, and, as the French have been lately styled by Mrs. McDonald[1008 Ap.] "the happiest people in the world," it is probable they owe their happiness to these prudential domestic customs of theirs; but Greene, however, hastens to declare that "the laws of Nature cannot be violated with impunity."

The dangers of overpopulation [22 May 30] from poverty, disease, and mortality, which would ensue were the human race to breed like rabbits, without ever moving from one locality or imposing any restraint upon their instincts, are not, however, imminent, since these conditions do not exist in any civilized country, the facility of locomotion affording an abundant and easy outlet for redundant populations, and the world for some hundreds of years at least will provide an ample area for the accommodation of all the overpopulation of the congested districts of Europe; and, indeed, the attempt to limit population would be pernicious, inasmuch as it would deprive the world of the human units of labor which are necessary to the development of its resources and the advance of civilization. Were it not for the overpopulation, which has been represented as an unmixed evil, Australia would to-day be in the primitive state of barbarism in which our surplus workers found it; and we, therefore, subscribe to the principle that, however the individual may suffer from excessive assiduity in the reproductive function, he is a benefactor to the commonwealth "who makes two blades of grass grow where one grew before."

Frank P. Foster,[1 Apr. 6] speculating upon "the population of the future," says that civilization everywhere has had for its antecedent the increase of population, pressure of population having been the proximate cause of progress, producing the original diffusion of the race, compelling it to abandon agriculture, and forcing it into the social state, leading to social organization; but, while the excess of fertility has rendered the process of civilization inevitable, this process of civilization in turn must inevitably diminish fertility and at last destroy its excess. The necessary antagonism of individuality and genesis not only fulfills with precision the *à priori* law of maintenance of race, from monad up to man, but insures final attainment of the highest form of this maintenance, in which the amount of life shall be the greatest possible, and the births and deaths the fewest possible. The evolution of the higher life, through the development of the intellectual and moral nature of man, will eventually cause humanity to excel in quality rather than in numbers, and the two, three, or at most four, children in the families of the future will be citizens worthy of the state.

Thus viewed, the citizens of Massachusetts may take comfort in the showing of the census of 1885 $^{99}_{\text{Mar.30}}$ that 232,704 native-born mothers in that State have had but 784,499 children, or an average of 3.37 children to each native American mother, while 154,941 foreign-born mothers have had 809,548 children, or an average of 5.22 children to each mother of foreign birth.

The very great care taken in the preparation of the registration reports of the State of Massachusetts gives them especial value to physicians, sanitarians, and economists. From the forty-sixth report for the year 1887 it appears $^{59}_{\text{Mar.2}}$ that the birth-rate for that year was 24.45 per 1000 of living population and the death-rate 20.28, being greater than that of the preceding twelve years and greater than it used to be from 1850 to 1862. The ages of greatest mortality are observed to be from 20 to 30, then from 30 to 40, and then from 70 to 80. Very little decrease from zymotic diseases is noticeable, if we except dysentery. The birth-rate and marriage-rate, on the other hand, have declined and do not compare favorably with those of European countries, excepting France and Hungary. Russia is the most prolific European nation, having a birth-rate of 49.4 per 1000 of living population. Hungary, Austria, and Germany follow, with Ireland and France at the bottom of the list. The ratio of male to female births was 105.2 to 100. The ratio of illegitimate births to total births in Massachusetts for a period of 20 years is only 16. In Bavaria the illegitimate children born number 152 per 1000, in Austria 134, in England 53, in Greece 12. The ratio of natural children born of foreign mothers was 45.9 per centum, showing that the immigrant is as decided a factor in the production of illegitimate children as in filling almshouses, hospitals, schools of correction, and prisons.

Rural Depopulation.—In 1886$^{208}_{\text{Mar.9}}$ the aggregate population of French cities of 10,000 inhabitants amounted to 6,298,637, or 175 per 1000, of the total population of 35,834,602, deduction having been made for the subsequent territorial losses of 1871. In 1886 the population of the cities of 10,000 inhabitants aggregated 8,713,916, or 228 per 1000 of the total population of 38,218,903, showing that the urban centres had absorbed one-twentieth of the whole population in twenty-five years at the expense of the small rural communes. The actual gain in population in France between 1881 and 1886 has been 546,855, the urban population having increased 669,966, while the rural had decreased 123,011.

The same tendency toward urban centres is observed in Great Britain,$^{22}_{\text{Mar.27}}$ where the rural population remains at about the same figure, while the cities increase in a decidedly greater ratio. Improved methods of economizing manual labor, rendering so many farm-hands superfluous, have been assumed to be the cause of this diminution of rural population.

The evils of the agglomeration of people in large cities are believed to be less serious than before the sanitary epoch, but C. N. Gwynne$^{2}_{\text{Oct.19}}$ predicts that the gradual massing of the population in large cities and the resulting moral as well as physical evils will require some remedial measure, as emigration and systematic colonization and the check of the reckless procreation of children among the poorer classes by raising the legal marriage age. Since society does not discountenance but rather encourages immature and reckless marriages, the children of such unions have a substantial claim to look to society for their protection. The great mass of diseases observed among patients in children's hospitals is either of the scrofulous, tuberculous, or rachitic diatheses, types having their origin in the conditions under which these children are reared in cities.

Race Degeneration.—Beddoe$^{2}_{\text{June 2}}$ is of opinion, respecting the alleged degeneration of the race, that there is a basis of truth in the statement. The nervous temperament is being developed at the expense of the sanguineous and the sympathetic, an inevitable change because of the social and industrial influences, which crowd men in all civilized countries more and more into towns, and the influence of indulgence in alcohol, tea, and tobacco. While it may be true that the working population is degenerating in size, the middle class is probably not. In America the average white man is rather taller than the average Englishman and quite as heavy. The people of the Western States are decidedly bigger than those of New England and New York.

The degeneracy of the agricultural population drawn from the rural districts through emigration to the large towns is supported by a recent official declaration of the British Admiralty [2, Jan. 5] that "the deterioration in the physique of the stokers in the royal navy having become very marked, the commander-in-chief at Portsmouth, Sir Edmund Commerell, has forwarded to the Admiralty a strong recommendation on the subject. It is recommended, as a remedy for the existing state of things, that an effort should be made to recruit the ranks of the stokers from the rural districts instead of from the large towns."

Sir T. Graham Balfour, President of the Royal Statistical Society, [2, June 26] dissents from the desponding conclusions of the Director-General of the Army Medical Department, Sir T. Crawford, based on the comparison of the causes of rejections of recruits for the army for the two periods, 1860–64 and 1882–86, that "the masses from whom army recruits are chiefly taken are of an inferior physique to what they were twenty-five years ago." He shows that the methods of recording rejections are different, and that minor defects and others discovered by improved means of diagnosis are now noticed which were formerly not. Eliminating these, he finds a diminution in the ratio of rejections per 1000 of nearly 100 (398.2 to 299.8).

Petithan [256, Aug. 15] finds reason for deploring the physical degeneracy of the Belgian people in the fact that while in 1850, among 38,487 men examined for the army (*inscrits*), 15,671, or 40 per centum, were rejected for physical defects, in 1885, out of 52,097 examined, 23,503, or 45 per centum, were rejected, the diminution of 2 centimetres (0.78 inch) in standard height since 1850, and other modified regulations, permitting men now to be accepted who would then have been rejected. He finds the causes in the dissipations and indulgences and insanitary conditions of urban life, the spread of syphilis, alcoholism, and tuberculosis, and the remedy in the abandonment of unhealthy city trades for agricultural employment and in the endeavor to diminish procreation.

Density of Population.—In connection with the rapid increase of urban population, the compactness with which it is massed in great cities is a matter for consideration. In 1846[208 Mar. 9] the number of dwellings in France was 7,462,545, and the average number of residents in each 4.73. Forty years later (1886) the houses numbered 7,706,137, with an average residence of 4.98. In Paris alone each domicile shelters an average of 31 persons, or six times as many as in all France. The topographical distribution of houses shows an increase, from an average of 14 houses in 1861 to each square kilometre (over 36 to the square mile) in all France, to 15 in 1886 (39 to the square mile); these, however, being scattered irregularly among the several departments, ranging from 289 to the square kilometre (748 to the square mile) in the Seine to only 4 (10 to square mile) in Corsica, while in Paris alone there are 940 houses to the square kilometre (2435 to square mile). The census of 1886[6 May 11] gives Paris a population of 2,344,450 (1,103,014 males, 1,157,931 females), who are very unevenly distributed over its surface, the centre remaining nearly stationary, while the *faubourgs* increase at the rate of 85 per centum. True Parisians, those native-born, number only 749,188, or not quite 32 per centum, the remaining two-thirds consisting of Normands, Provençals, Auvergnats, and Belgians, and including 180,000 foreigners (Englishmen, Spaniards, Americans, etc.). The average density of the city is 237 persons to the hectare (96 to the acre), while the old city has as many as 773 to the hectare (313 to the acre). A similar disparity exists in London, where the average density is 141 to the hectare (57 to the acre), and that of the crowded parts 430 to the hectare (174 to the acre).

According to Billings[9 Nov. 8] the number of persons in a dwelling in the large cities of the United States, as shown by the census of 1870, varied from 14.07 in New York to 5.20 in Toledo, these differences being largely due to the counting of tenement-houses containing several families as one dwelling. By the same census the greatest average number of persons to a family was 5.78 in Kansas City, while in New York it was but 5.07. In 1880 the proportion of persons to a dwelling ranged from 16.37 in New York to 4.68 in Memphis. In Boston it was 8.26, in Baltimore

6.54, in Philadelphia 5.79. The number of persons to a family was in Baltimore 5.8, in Philadelphia 5.13, in New York 4.96, in Memphis 4.23.

Overcrowding.—J. M. Anders[60 Feb.16] says that the tenement-houses of the cities of New York and Brooklyn furnish the most impressive example to be found in the United States of the evil consequences of massing a population. A single ward in New York City[1005 Dec.] has over 290,000 to the square mile (111,970 to the square kilometre), and several have a population of 200,000 (77,225). In one seven-story tenement in Ludlow Street, holding 36 families, the sanitary officers found 58 babies and 38 children over 5 years of age. In Essex Street two small rooms in a six-story tenement held a family of father, mother, 12 children, and 6 boarders. Indeed, one-half of the entire population live in these houses, while more than 75 per centum of all deaths occur there. Riis asserts that nowhere in the world are so many people crowded together in a square mile as here. The densest crowding of old London is stated to be 170,000 to the square mile (65,640 to the square kilometre).

The influence of overcrowding is shown by comparison of the population of Liverpool, as given in the British Registration Report, with that of Manchester. In the former, where 178,000 are aggregated in a square mile (68,730 to the square kilometre), the death-rate is 34.8; in the latter, where the density is but 100,000 (38,612), it is only 33. In rural districts, with a population of 54,000 less to the square mile (20,850 to the square kilometre), the death-rate is 16.8. The fact that the death-rate of London has decreased from 42 per 1000 between 1681 and 1690, when it contained a little over half a million people, to 35 per 1000 in the next century with a slight increase of population, to 23 per 1000 during the last century, to 22 per 1000 in 1872, and finally to 18.5 in 1888 with an enormous increase to over 4,000,000 of inhabitants, until it is not only the largest but the healthiest city in the world, is due to sanitary measures, and chief among them the opening of broad avenues, squares, parks, and gardens. Similar sanitary improvements in Paris, as the opening of broad thoroughfares through the thickly-populated sites, have reduced the death-rate of that city from 52 per 1000 in former years to 23.9 during the past decade. To still further alleviate the misery in great cities consequent upon overcrowding and to make life tolerable to the masses Frederick Greenwood[6, June 23] proposes to improve their houses, abolish rookeries, cheapen fuel, better the food-supply, and especially to provide cheap and good cookery. The reduction of the death-rate of London from 24.5 to 18.5 in 25 years[83, Oct.] means the saving of six lives in every 1000 persons, or among the entire population the saving from untimely death in one year of more than 24,000 human beings.

London having twice doubled its population[6, July 13] in the eighty years from the establishment of its boundaries in 1801, when it was less than a million, to 1881, when it had nearly reached four millions, it has been assumed that thirty-two years hence, London proper will contain 9,000,000, and what is called Greater London, "London over the border," two millions more,—a total of 11,000,000. The estimated density of London in 1888 was 57.3 persons to the acre (141 to the hectare), and should the estimated population be reached the density will be 114.6 persons to the acre (283 to the hectare), which is actually less than the mean density last year of the borough of Liverpool. From the facts that the rates of increase in the four intercensal periods since 1841 have been successively 21.2, 18.7, 16.1, 17.2, indicating a retardation of increase, probably due to the building up of vacant places, and that Greater London is really increasing at the expense of inner or registration London, it is probable that the population of the latter will be below the estimate of 9,000,000, and of the former will exceed that of 2,000,000.

Mere unsupported numerical statements are apt to delude as to the real facts of the sanitary condition of a place. Stallard[147, Mar.] instances San Francisco, with a population in 1888 of 300,000, exclusive of Chinese, and having a death-rate of only 18.36 per 1000, the lowness of which is explained by the peculiar character of population, there being a great deficiency of infants, few very old, and a great majority of males in the prime of life. Of 1000 persons there are:—

	In San Francisco.	In England.
Under 20 years of age,	410	590
Between 20 and 25 years,	90	100
" 25 and 35 "	180	120
" 35 and 45 "	160	90
" 45 and 55 "	100	60
" 55 and 65 "	42	30
65 and over,	18	10

Nearly half the population of San Francisco, 45 per centum, is between 35 and 59 years of age, while in England those of corresponding age number only a little over one-fourth (37 per centum). Further, in San Francisco the males are in the proportion of three to two females, while in England the latter are in excess.

With the specially favorable conditions of San Francisco as regards climate, prosperity, and youth, its death-rate ought really not to exceed 15 per 1000, and that its sanitary condition is not satisfactory, despite its comparatively low death-rate of 18.36 per 1000, is shown by comparison of the mortality-rates of two of the so-called filth diseases:—

Death-rate in 1888 per 100,000 of population:	In San Francisco.	In London.
From typhoid fever, ...	52 6	16.3
" diphtheria, ...	37.0	30.0

The differences are still more marked if the most poverty-stricken and densely-crowded parts of London, viz., Bethnal Green, Whitechapel, and Shoreditch, are selected, where, in a population of 325,000, the deaths from typhoid fever were at the rate of 13 per 1000, and from diphtheria 33 per 1000.

Bertillon has indicated the great differences (amounting in some instances to twice or thrice) existing between the several Departments of France in rates of mortality at the several ages; and Arsène Dumont[208, Aug.3] shows that analogous differences exist between the rural communes, often of the same canton, respecting social activity, wealth, food, natality, marriage, fecundity, mortality, etc. As an instance of notable difference in natality he contrasts St. Contest, a rich agricultural commune of the Canton Caen, with a rate of 10.9 per 1000, whose factors were a normal marriage-rate of 7.9 per 1000 and a small nuptial fecundity of 1.3 children to the family, and the poor Commune des Portes (Isle de Ré) having a mean annual natality of 44.8, the product of the high marriage-rate, 9.3 multiplied by a considerable nuptial fecundity of 4.8 children per family. While these would be remarkable in countries widely separated, it is astonishing that they should happen in contiguous communes. In the Isle de Ré, at the same time that the Commune des Portes counted 44.8 births per 1000 inhabitants, Loix, the neighboring commune, had 43.1, and La Couarde, a few kilometres distant, only 25.2, and the little town of Saint Martin only 22.5. While Loix boasted an average of five children to each family, La Couarde and Saint Martin had only 2.3 each. A few leagues sufficed to put between families shut up on the same little island greater demographic differences than centuries of history, languages, customs, political institutions, and religion could bring about between France and England.

Demographic Effects of Civilization.—R. W. Felkin[36 Aug.] considers that civilization produces in man two conditions: 1. The man living in a wild state has a different constitution from the man living under conditions of high culture, the latter inducing nervous impressions, which lower vital energy, and an artificial environment lessens corporeal resistance, the civilized man thus becoming more prone to inroads of septic diseases, which can be successfully withstood by lower races. 2. It is quite possible the power to eliminate poisonous products is greater in uncivilized than in civilized races. At any rate, it is certain that there are individual peculiarities (*a*) in the composition of the blood and its relation to tissue change, and (*b*) in the activity of tissue change (metabolism), coupled with free access to fresh air (complete oxygenation), which give the lower races an advantage over the higher, the latter having become through their inherited civilization the unfortunate possessors of a fitting soil for septic infection. He concludes "(I) that races vary in different parts of the world, (*a*) as regards their mental and physical characteristics, (*b*) in their liability to suffer from various diseases, (*c*) in the effects which wounds exert upon them, (*d*) in their power of bearing pain; (II) that civilization, by tending to make a race less hardy, increases sensitiveness both to pain on the one hand and to the inroad of morbific microbes on the other, and that, therefore, (III) civilization does certainly increase the liability of a race to the power of sepsis, but that, (IV) fortunately, science, by the strides it makes, tends to bid defiance to septic diseases, although they are rendered more potent by the advance of nations from a lower to a higher plane." Prehistoric trephining, bone-scraping for rheumatism in the South Sea Islands, the performance of ovariotomy in Australia with rude stone knives, rough operations of castration of boys and ablation of the clitoris and labia minora in Central Africa, the incision of the perinæum before parturition and its mechanical closure after, freedom from puerperal fever and the impunity with which abortions are produced, the rude cupping processes in Africa, the sores caused by the slave-yoke in the Soudan, the recovery from wounds and operations without sepsis and without manifestations of pain,—all these indicate racial peculiarities which justify the foregoing conclusions. Felkin[2, Sept. 21] finds the tactile sensibility of Europeans, Arabs, and negroes to be in the proportion 1, 2, 3, the last exhibiting in consequence their stoical indifference to pain. The uncivilized negro, owing to the less sensitive nature of his nervous system, has less anticipation and consciousness of pain, which probably is the explanation of the unconquerable apathy of the Hindu[80, Oct.] to assaults of wild beasts and deadly reptiles. As a result of education, Felkin found acuteness of touch in the negro increased one-third. The native Egyptian, according to Clot Bey,[1, Dec. 21] is an exceptionally good subject for operation, shock being unknown and dread of an operation not existing. The Jesuit Father Croonenberghs,[229, Mar.] of the Zambesi Mission, correspondent of the ANNUAL, says that during his six years' residence in a native village among 15,000 people only 2 tedious labors, neither fatal, occurred, and that few deformed children are born. He attributes the marvellous rapidity of healing of wounds among the Zulus and other savage tribes not alone to climate and mode of living, but to the natural endowment of the people.

According to Certes[6, Sept. 28] there are no pathogenic microbes to be found at Cape Horn. The Fuegians did not know anything about small-pox, measles, scarlet fever, or diphtheria before the inroads of civilized nations. Prior to the visits of the missionaries even pulmonary phthisis was unknown, and tuberculosis only began to establish itself in the country since 1881.

The primitive family in its origin and development is the subject of a work by C. N. Starcke,[2, July 20] who does not believe in the universality of promiscuous sexual intercourse in the primitive human community, and is equally decided in his disbelief of the existence of Amazonian or distinctively gynocratic tribes. He assumes (1) that civilization has been progressively developed with man originally at the bottom of the scale, and (2) that the primitive condition of all human communities was virtually the same, although he rejects the notion that all mankind sprang from a single pair. Starcke does not believe with McLellan that polyandry was at any time universal, nor that such institutions as the Levirate are a relic of polyandric times. His conclusion is that the male rather than the female line of reckoning was primitive.

Lester Ward,[59 Aug.] reasoning from various zoölogical data, concludes that woman is the race and man only a necessary adjuvant, who performs the duty of impregnating the ovum and starting the progeny, all moral and intellectual progress coming through the woman. Grant Allen, by a like appeal to zoölogy and embryology and the facts of heredity, tries to prove that woman is the appanage and man the chief factor of existence, she being simply or mainly set apart for purposes of perpetuating the race. Félice La Torre shows that a decided preponderance of influence upon the health and development of the fœtus is exercised by the father, so that to have children sound and well it is necessary for the father to be sound in health, while the mother may be an invalid.

Weight of First-born Children.—The opinion of D'Outrepont that the weight of first-born children is less than that of those of subsequent labors is confirmed by later writers.[763 Apr.] D'Outrepont places the mean weight of the first child at 144 grammes (5 ounces av.) less than that of later children; Hecker at 140 grammes (5 ounces av.); Spiegelberg at 100 grammes (3.5 ounces av.). Dungan shows from 2053 infants that the weight augments with the age of the mother. The first-born had an average weight of 7.17 pounds (3.25 kilogrammes), succeeding ones an average of 7.27 pounds (3.3 kilogrammes), and his results are corroborated by Hecker, who says the number of labors ought to be considered. Irme, on an analysis of 7612 children at term, holds that the weight augments, not only with the age of the mother and number of labors, but that certain years, "the age of predilection," are favorable for the size of the child and the safety of both mother and child. This agrees with Wernich's results, who found that the years of the "age of predilection" were 24, 29, 31, and 35 for the second, third, fourth, and fifth labors.

The following table, collated at the *Maison d'accouchement* at Christiania and Bergen, in Norway, exhibits the lowest weights for first-born, about the same for offspring of second and third labors, and a progressive increase for those of the three succeeding labors. Above the sixth the numbers are too few for decisive conclusions:—

Ages of Mothers.		Number of the Labor.													Total No. Children.	Mean Weight, Grammes.
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII		
Under 20 yrs.	No. of children .	99	6	..	..	..	..	..	..	..	..	..	..	..	105	..
	Mean weight, gm.	3221	3425	..	..	..	..	..	..	..	..	..	..	..	..	3238
20–24	No. of children .	929	193	20	4	..	..	..	..	..	..	..	..	..	1146	..
	Mean weight, gm.	3328	3349	3617	3492	..	..	..	..	..	..	..	..	..	..	3337
25–29	No. of children .	650	4131	111	37	14	4	1	..	1	1	..	..	..	1232	..
	Mean weight, gm.	3330	3454	3434	3441	3672	3480	2600	..	3500	4000	..	..	..	..	3389
30–34	No. of children .	239	190	96	50	34	25	9	5	2	2	..	..	..	652	..
	Mean weight, gm.	3314	3472	3328	3511	3597	3757	3502	3573	3525	4500	..	..	..	..	3418
35–40	No. of children .	72	88	33	29	21	32	17	11	9	3	2	1	1	319	..
	Mean weight, gm.	3256	3292	3324	3497	3264	3462	3384	3522	3581	3017	4000	4000	3600	..	3347
Over 40	No. of children .	9	17	16	10	7	14	7	11	4	5	7	2	..	109	..
	Mean weight, gm.	3236	3198	3522	3304	3704	3304	3461	3541	3830	3855	3270	3325	..	..	3417
Aggregate.	No. of children .	1998	907	276	180	76	75	34	27	16	11	9	3	1	3563	..
	Mean weight, gm.	3321	3415	3402	3471	3529	3531	3408	3542	3631	3757	3452	3550	3000	..	3370

Consanguineous Marriages.—M. Huth argues[22, Feb. 27] that trustworthy data disprove the prevalent belief as to the infecundity and physical degeneration consequent on consanguineous marriages, instancing the enforced consanguinity in marriage in isolated communities, where no physical degeneration is manifested, and the fact that the children of unions between uncles and nieces, nephews and aunts, and cousins of the first and second degrees are rather above than below the general average.

Breeders find their results markedly in favor of consanguineous unions between healthy, well-bred animals, and as the converse unions between men and animals of widely different varieties are either sterile or, like the mulattoes and half-breeds of India and America, are instances of the deterioration due to racial disparity, while the union of individuals having the same morbid tendencies intensifies the taint irrespective of any consanguinity.

The prohibition of marriage within certain degrees of relationship can only be established on social and not physiological grounds.

Military and Naval Statistics.—The annual report of the Surgeon-General of the United States Army for 1889 gives the following statement of the comparative health of the army and of various foreign services:—

MEAN STRENGTH AND RATIOS OF ADMISSIONS, DEATHS, AND CONSTANT NON-EFFECTIVENESS PER 1000 OF MEAN STRENGTH FOR VARIOUS MILITARY SERVICES.

ARMIES.	Mean Strength.	RATIO PER 1000 OF MEAN STRENGTH.		
		Admissions.	Deaths.	Constantly Non-effective.
United States, 1888	24,726	1,270.73	8.15	41.91
" " " (white troops alone)	22,310	1,464.82	7.55	41.62
" " " (colored " ")	2,416	1,249.71	13.66	44.56
" " 1887	23,841	1,246.88	8.12	42.38
" " " (white troops alone)	. . .	. . . .	7.85	41.99
" " " (colored " ")	. . .	. . . .	10.71	46.07
" " 1877 to 1886	23,670	1,615.49	10.23	43.70
" " " " (white troops) . . .	. . .	. . . .	9.97	. .
" " " " (colored ") . . .	. . .	. . . .	12.91	. .
Great Britain, 1886 (home and colonies)	188,739	1,085.05	11.48	57.69
" " " West Indies (white)	. . .	1,168.60	14.70	55.09
" " " " " (colored)	. . .	1,292.80	19.64	57.25
" " 1876 to 1885 (white)	. . .	893.50	15.42	44.68
" " " " (colored)	. . .	1,074.10	15.88	58.88
Austria-Hungary, 1887	269,845	1,023.36	6.95	39.94
Italy, 1886	204,428	797.89	9.31	34.41

The average death-rate from disease, exclusive of cholera and yellow fever, in the United States Army during the period 1840 to 1859, but not including the years of the Mexican War, was 18.98 per 1000 of mean strength, and the corresponding rate of the year following the war was 19.29, as compared with the rate for the present year, from disease only, 6.09 per 1000. In the Prussian Army, in times of peace, fifty years ago, the mortality was 13.8 per 1000; thirty years ago it was 9.5; twenty years ago it had fallen to 6; and now it is in the neighborhood of only 4.5 per 1000.

So large a preponderance of the deaths in the army and navy is from violence that accurate comparisons with the statistics of civil life are only possible when these are excluded. The proportionately greater numbers of admissions in the military and naval services of the United States, as compared with those of foreign nations, does not indicate a worse sanitary condition, but only that every ailment, however trivial, which excuses a man from duty becomes a matter of official record. Thus it will be seen that the death-rates fall under a few principal headings, such as injuries and diseases of the respiratory apparatus.

Among 8550 admissions in one year of sick and disabled officers and men of the United States Navy and Marine Service, 7406, nearly 90 per centum, were included in the following few classes:—

Casualties, ...	1917	48.4 per centum.
Inflammatory affections of the respiratory tract,	1149	
Venereal diseases, ...	1071	
Diseases of the integument, ...	888	38.3 per centum.
Fevers, principally malarial, ...	888	
Rheumatism, ...	521	
Affections of the nervous system, . . .	489	
Diarrhœal complaints, ...	483	

The remaining 1144 (13.3 per centum) were distributed over a wide range of titles, of which many, as the meaningless adynamia, cephalalgia, constipation, odontalgia, and the like have no special pathological significance.

The following table of statistics of disease and death in the United States Navy during the thirteen years, 1873 to 1885, the result of a careful compilation made by me, is here introduced for comparison with the similar returns of the various military services:—

Years.	Strength Navy and Marine Corps, corrected for Time.	Aggregate Number of Cases.	Per 1000 of Strength.							
			Admissions to Sick List.	Deaths.	Afloat.		On Shore.		In Hospital.	Total Number of Sick.
					Number.	Sick.	Number.	Sick.		
1873	13,121	13,322	1,015	9.7						
1874	12,858	14,124	1,098	12.4						
1875	13,151	11,205	852	9.5						
1876	11,408	11,449	1,003	10.1						
1877	11,505	10,457	909	8.0						
1878	11,739	11,084	944	9.0						
1879	11,797	13,983	1,185	8.1	752	20	230	7	18	45
1880	11,663	12,923	1,108	9.5	772	19	210	6	13	43
1881	12,196	13,544	1,110	7.9	782	16	202	8	16	40
1882	12,277	12,866	1,047	7.3	763	17	222	7	15	39
1883	11,996	12,260	1,022	9.3	765	15	219	6	16	37
1884	13,175	12,808	972	6.2	755	16	231	4	14	34
1885	12,369	12,275	992	8.8	757	15	229	5	14	34
Average for 13 years.	12,250	12,485	1,019	9.0						
Average for 7 years.	12,210	12,951	1,060	8.1	764	17	220	6	16	39

During the years 1886, 1887, and 1888 the mortality of the force afloat has been 5.42, 3.77, and 6.02 respectively, or, excluding those accidentally drowned at Samoa, 4.11 for the last year, and for the entire service, afloat and on shore, during the same year, 12.35, or, without including those lost at Samoa, 10.75.

The longer lease of life enjoyed in the navy, especially in the force afloat, due to sanitary prevision and in spite of the vicissitudes and exposures incident to the seaman's occupation, is illustrated by the following comparison with the mortality statistics of civil life from two localities selected as the most favorably conditioned:—

	Number of Persons.	DEATHS.	
		Number.	Per 1000.
Aggregate force afloat, U. S. Navy, 1873–'85 . .	112,209	578	5.15
Aggregate strength Navy and Marine Corps, afloat and on shore, 1873–'85	159,255	1,426	8.95
Population of State of Massachusetts, 1885 . .	1,942,107	38,094	19.61
Aggregate white population, District of Columbia, 1876–'85	1,195,510	22,734	19.02
Aggregate negro population, District of Columbia, 1876–'85	605,473	21,185	34.90
Population of the United States, census of 1880	50,155,783	756,893	15.01
White population alone . . . " " "	43,403,783	640,219	14.74
Negro " " . . . " " "	6,752,000	116,674	17.28

The Japanese Navy, with a strength about the same as the American (9,148), according to the report for 1889 by the Director-General of the Medical Department, Takaki Kanehiro, had a ratio per 1000 of strength of only 377 admissions, 7.1 deaths, and 31.54 mean sick. Of the 65 deaths, 21 were from violence and accident, so that the mortality from disease alone was only 4.81. The daily average of sick was 288.5, or 3.14 per centum of their whole force. There had been no case of *beriberi* during the year, showing the continued immunity from this disease resulting from the improved dietary introduced in 1884.

The mortality in the French Army, which according to Longuet,[208 July 6] was for the old Army of the Interior (at home) 9 per 1000, and for the entire army 10 per 1000, has fallen through the influence of military hygiene (sanitary prevision) to 6 per 1000 for the one and 7 per 1000 for the other, although the mean mortality of young men from 20 to 25 years of age in military and civil life together amounted to 12.6 per 1000.

M. Laguran,[100 Feb. 4] however, states the case somewhat differently.

He says that, while the average annual mortality of young men in France from 20 to 30 years of age is from 8 to 10 per 1000, French soldiers in the interior, notwithstanding the elimination of all the feeble and infirm, thus lessening the causes of mortality, have a death-rate of from 9 to 11 per 1000, the effect of overcrowding in barracks.

Comparing these rates with those of the same class in the French colonies, he finds that in Algeria the mortality of 77 per 1000 from 1837 to 1848 had fallen to about 11 to 12 per 1000, not much in excess of the soldier at home; in Tunis the mortality of 61 per 1000 in 1881 had dropped with great rapidity almost four-fifths, and is now 12 per 1000; in the Oceanican colonies, as at Tahiti, it is 8 to 9 per 1000; in the French Antilles, although it has diminished considerably from 91 per 1000 from 1819 to 1855, it is ordinarily twice what it is in France; in Guiana, although less for soldiers than for colonists, it is especially enormous during yellow-fever epidemics, when, as in 1855, it rose to 237 per 1000; in the French Indies (at Pondicherry) it is 37 per 1000, or three times that in France; in Cochin China, as in other colonies, considerable during the early years of occupation, it has fallen from 115 per 1000 in 1861 to about double the home rate; in Tonquin, which ought to be healthier on account of changes of the seasons, the small force, exhausted by overwork, had an annual mortality of 40 per 1000 from 1882–'85, raised by the cholera of the latter year to 96; at Reunion the mortality would be only moderate but for the fact that the sick from Madagascar and neighboring islands come to the hospitals to die, so that the ordinary death-rate of 29 to 30 is raised to 70 to 113 in times of expeditionary work; in Senegal, which is most unhealthy, the mean mortality from 1832–'37 was 148, but fell to 73 through shortening the period of residence and invaliding home 150 per 1000 of the force. From all these colonies the returns are incomplete in that they lack the number of the invalided who die after leaving the station. By order of the *Sous-Secrétaire d'État des Colonies*, Louis Henrique[208, Sept. 21] has published the first three volumes of an illustrated history of the French colonies in Oceanica, America, and Indo-China.

Spain.—The growth of Spain during the century since the first official enumeration of 1768 is tabulated by General Ybanez[208, Nov. 2] as follows:—

CIVIL CONDITIONS.	Census of 1768.	Census of 1787.	Census of 1887.
Bachelors and widowers	2,809,069	3,162,067	
Spinsters and widows	2,911,858	3,215,482	
Husbands and wives	3,439,072	3,891,661	
Aggregate	9,159,999	10,269,150	16,634,345

The last total represents the population of the peninsula and adjacent islands and the possessions on the north coast of Africa. Including the Spanish colonies, the population of the entire kingdom amounted to 24,456,468.

The following table gives the statistics for 1884:—

	1861–'70.	1878–'84.	1884.	Per 1000.
Number of births	612,180	620,322	637,052	38.3
Number of marriages	. . .	109,522	115,470	6.5
Number of deaths	. . .	525,873	535,256	32.1
Excess of births over deaths	. . .	94,449	101,796	

Compared with France, the birth-rate is 11 per 1000 greater, the nuptiality 1.5 less, and the mortality 7 per 1000 larger.

Japan.—W. N. Whitney, corresponding editor, writes from Tokio that the population of the empire on December 3, 1887, was 39,069,007, of which 19,731,354 were males and 19,337,653 females, or 1020 men to 1000 women. The increase in population since 1878 has been 3,290,423, or at the rate of 1.1. From 1886 to 1887 the rate of growth was 1.46. Less than 2.5 per centum of the population were over 60 years of age, while about 43 per centum were under 10.

The death-rate is about 24.5 per 1000. The highest mortality is from diseases of the digestive organs (21.44); next from diseases of the nervous system (20.80); epidemic diseases (19.12); diseases of nutrition (15.41); diseases of the organs of respiration (14.04); genito-urinary diseases (2.85); and from all other causes 6.34.

Australia.—H. N. MacLaren, at the Intercolonial Medical Congress held at Melbourne January 10, 1889,[15 Apr.] presented a series of tables as the foundation of an attempt at more complete statistical returns from the several colonies, regretting that only mortality data were available, and not those of actual disease conditions in cases which did not die as well as those that did.

Colony or District.	Pulmonary Phthisis.		Typhoid Fever.		Diphtheria.	
	Deaths per million of Population.	Percentage of Deaths from all Causes.	Deaths per million of Population.	Percentage of Deaths from all Causes.	Deaths per million of Population.	Percentage of Deaths from all Causes.
New South Wales	1157.1	7.16	530.6	3 29	613.8	3.76
Sydney	2223.7	11.00	713.1	3.53	352.7	1.74
Suburbs	1974 6	7.80	852.8	3.37	597.0	2.35
Country	757.7	5 73	421.0	3.18	669.0	5 06
Victoria	1419.4	9.63	434.8	2.95	340.5	2.31
Melbourne and suburbs	2391.6	11.87	529 8	2.63	373.5	1.85
Rural districts	886.2	7.54	382.7	3.25	322.4	2.74
Queensland	1862.3	9.51	1699.0	8.68	653.2	3.34
Tasmania	1083.8	7.12	224.2	1.47	373.7	2.45
South Australia	960.1	7.70	453.4	3.64	587.9	4.71
New Zealand	896.5	8.45	223.2	2.10	299.9	2.83
Western Australia	682.1	3.35	328.4	1.61	227.4	1.12

As in almost every other part of the world, pulmonary consumption figures as the greatest single cause of death. In the older colonies, and especially in the urban districts (Sydney and Melbourne), the percentage of cases is high, approaching the average of the thickly-peopled countries of the Old World, but when the general condition of Australia is considered the comparative immunity from the disease which a considerable portion of this island-continent enjoys is notable. The rural districts occupy a position with the most favored countries of the globe, and even Queensland, which is the worst of the colonies as a whole, is practically the same as Switzerland, in which the death-rate from phthisis is very low for Europe, while the more favored colonies compare favorably with the rural portions of Northwest Africa, which have been long celebrated for comparative immunity from phthisis. In the great cities the proportion is equal to that of many European cities, so that phthisis is evidently a disease of towns, and especially of great towns, and it is a curious fact that, from an examination of the death returns of the Australian Mutual Provident Society for a period of thirty years, and of the Mutual Life Association of Australasia for a period of twenty years, the ratio which claims arising from deaths from phthisis bear to claims from all other causes whatsoever is almost exactly the same in both societies, namely, 12.4 per centum; and as these life-insurance companies rarely accept proponents under 15, and as their entrants are for the most part several years older, the agreement is all the more remarkable. In Victoria the percentage of deaths from phthisis to all other causes in persons over 15 years of age is 15.43, in New South Wales 13.40, in Queensland 16.01.

The belief that the great amount of trafficking in tuberculous cattle, especially in New South Wales, whether for slaughtering or for dairy purposes, has a part in the spread of consumption is strengthened by the great immunity from phthisis shown by the Jews in Australia, among whom, according to Rabbi Davis, of Sydney, "the slightest speck in the lungs (which are blown out to their full extent), or blemish of any kind, would be sufficient to condemn the carcass, and the butcher accredited by the Jewish community would not be permitted to dispose of it." Only one death from phthisis is reported among the 4000 persons constituting the Jewish population of New South Wales. Had the Jewish rate been general only 79 would have died in 1885 instead of 1095, the number who did die,—a saving of over 1000 lives a year through the exercise of similar precautions in avoiding the consumption of the flesh of tuberculous oxen and the milk of tuberculous cows.

Surgeon-General James Sinclair[2 Jan.], attributes the great prevalence of hepatic affections in *Malta*, not to the high temperature and aridity of the summer months, since the diseases were as frequent in the winter, but to parasitic invasion through the food, and instances Maclean's declaration at Netley that echinococcus of the liver was more frequent in men from the Mediterranean Station than in those from others. The history of Ireland is quoted as a warning to Malta as to the serious consequences to a people of the continued consumption of infected animal food.

Showing the extent to which live stock used for food is impaired by diseases, Marks[183 Nov.] found, among 3064 hogs raised near Boston, 12.86 per centum to be trichinous, and of 234 from public institutions 17.95 per centum unfit for food. F. S. Billings found 3.9 per centum of 8769 hogs raised in the West trichinous.

Sandwich Islands.—These islands have exceptionally favored the study of the demographic effects of introduced diseases upon a virgin soil,[245 May,] a quartet of such diseases, syphilis, measles, small-pox, and leprosy, having successively appeared to undermine the physical constitution of the race. The numerical rate of depopulation has been already reported in this department of the ANNUAL for 1888, (vol. v, pp. 174 and 175). Syphilis was the first gift of civilization to the Hawaiian people, but its effects were not so measurable by the direct loss of life as through the loss of the procreative power of the native and the enfeeblement of the offspring, resulting in their premature death. Measles was fatal in its onset, and small-pox, in many districts, destroyed half the population. Leprosy, though slower in its spread and less immediately fatal, now threatens the complete extinction of the race. The average duration of the disease is 11 years, and the annual mortality from it 58 per 1000. The local physician of the leper colony at Molokai, Hoffman, is himself a victim.

Surgeon-General George Birdie,$^{2}_{\text{July 20}}$writing upon the geographical distribution of disease in the *Madras Presidency*, says, with respect to leprosy, that the proportion of lepers in the population is 4.4 per 1000 as against 5.2 in Bengal and 8.5 in Bombay, and that the growth of the leprous population is checked by the diminished fecundity of persons having the disease in the active state and by the high mortality of their offspring.

Like the native Hawaiians, the *Maoris* are progressively decreasing. In 1820 they were estimated to number 100,000; in 1840 there were 80,000; in 1857 a census returned 56,049; while that of 1886 gave only 41,969.

Local Influences on Disease Distribution.—W. E. Smith, of the Committee of the Massachusetts Medical Society on the Distribution of Disease,$^{99}_{\text{June 20}}$quotes Kelly and Barnes, of England, as opposed to the conclusions of Maier, "that it is more than doubtful whether the geological position of the place influences the epidemic appearance of diphtheria." Barnes finds that the relative proportion of outbreaks of diphtheria to the inhabitants is 1 to 1800 on gravel and 1 to 300 on clay soil, and that, while scarlatina and other infectious diseases are most prevalent and fatal in densely-populated districts, diphtheria prevails among those comparatively thinly peopled, or in rural places where the dampness of the soil is a potential factor combined with sanitary neglect. Kelly states that, while the mortality from diphtheria and pulmonary affections is much higher on retentive than on porous soils, the mortality from phthisis and all causes combined is very nearly the same on all soils.

As an instance of the influence of forests on climate and health, Ferron, Chief of the Forestry Division of the Department of Agriculture, refers to the town of Abingdon, in Maryland, which had been noted for its healthfulness and the especial absence of chills and fever, until the forests between it and the river, which is four or five miles distant to the west, had been cut down, when a regular epidemic of the disease infected the place.

Miguel concludes, from his study of the living organisms of the atmosphere, (1) that the increase from zymotic diseases coincided with the increase in the number of bacteria suspended in the air, and (2) that during periods of rain the bacterial cipher became exceedingly small and increased again in dry seasons, according with the opinion of Tracy, of New York, as to the salutary influence of the protracted rainy season of 1888; but Clément[211 Oct. 27] states that he had carefully examined the influence of spring and summer rains and compared the mortality from variola, scarlatina, erysipelas, rubeola, diphtheria, puerperal infection, and typhoid fever for the 5 years from 1875 to 1880, contrasting 39 rainy weeks with 38 weeks of absolute or relative dryness, and found the mean mortality for the 39 rainy weeks to be 14.9 per 1000 and for the 38 dry weeks 14.5. He thinks that whatever beneficial influence may have been observed was due to the modified temperature caused by the falling rain.

R. Stern,[764 Dec.] as a result of experiments at the Hygienic Institute of the University of Breslau on the influence of ventilation upon the number of organisms floating in the atmosphere, concludes, among other things, that the saturation of the air with aqueous vapor is not to be relied upon as a means of depriving the atmosphere of the germs suspended in it. It does, however, to a limited extent, accelerate their disappearance.

E. Clément, of the Hôtel Dieu,[211 Sept.] in a series of papers entitled "*Des constitutions Médicales*," tabulates the vital statistics of Lyons in the endeavor to ascertain the influence of the several seasons and the particular influence of the several meteorological factors on mortality at the different ages.

Collective Investigation.—The Collective Investigation Committee of the British Medical Association[2 Jan. 19] summarizes the broad results of its inquiry into the geographical distribution in the British Islands of *rickets, acute and subacute rheumatism, chorea, cancer, and urinary calculus*, as follows:—

"1. That there is no district in the British Isles in which acute and subacute rheumatism and malignant disease are not common in the sense defined in the inquiry paper. Of varying degrees of prevalence above that point this inquiry was not designed to furnish a criterion.

"2. That rickets, though not unknown in rural districts, is mainly a disease of towns and industrial regions, and especially of large industrial towns; that it is rare in the rural districts of Scotland, the North of England, North Wales, and Ireland, Ulster excepted; that it is more common in the rural districts of Ulster and of the rest of England, and exceptionally prevalent in Cornwall, Kent, and North Essex.

"3. That chorea, like rickets, is mainly a disease of towns and industrial regions, though by no means unknown in rural districts; that it is fairly evenly distributed in the rural districts of the four countries; that it is rare in seaside watering-places; and that it is, by exception, somewhat rare in the south as well as the west of London, and not, generally speaking, common in Glasgow, even in the poorer quarters.

"4. That the distribution of chorea is further affected by that of acute and subacute rheumatism, its prevalence diminishing as the latter disease becomes rare.

"5. That urinary calculus exhibits a decided tendency to affect the eastern sides of the two islands; that its chief seat in South Britain is the county of Norfolk, from which it radiates into the neighboring counties, and in North Britain the angle of land above Aberdeen, from which it extends down the east coast to the Forth; that it shows a less decided tendency to appear in the coal-fields, being especially prevalent in the Black Country; and that its prevalence does not otherwise seem due to geological conditions."

Without claiming to have done more than initiate the difficult subject of the distribution of these several diseases, the Committee calls attention to the serious practical results of such an inquiry, since geographical distribution is the basis of sound etiology, on which the success of preventive medicine depends.

The report of the Departmental Committee on *Tuberculosis* 15 Dec. [illegible] in the United Kingdom, appointed April, 1888, lays it down that "Tuberculosis can only occur in an animal by reason of a microbe (Koch's rod-shaped microbe, discovered 1881) introduced into its system," and regards the slight differences in the bacilli found in human and bovine subjects as due to differences in the soil and not in the organisms. The order in which domesticated animals are liable to be affected is stated as (1) man, (2) milch-cows, (3) fowls, (4) rodents, (5) pigs, (6) goats, (7) sheep, (8) horses, (9) carnivora (dogs and cats very rarely). It is further stated that the female sex in all classes of animals suffers more than the male, and that the conditions causing predisposition are starvation, deficiency in oxygen (by reason of bad ventilation), exhausting secretions (as prolonged lactation), and possibly heredity and certain food-supplies. "It is held the disease can be transmitted to man from the lower animals by the ingestion of tubercular diseased meat or milk." The great frequency of tuberculosis in fowls has attracted attention. The fowl contracts the disease from expectorations containing bacilli, and in turn becomes the vehicle for its transmission to man and other animals.

The calculated death-rate from the various processes set up by the tubercle bacillus is stated from the registry of various countries[38, Feb.] to be 10 to 14 per 1000 of all deaths among human beings. It will be interesting, when accurate returns of tubercular cattle killed are obtained, to trace their relations to human tubercular death-rates. In Dublin, the animals slaughtered were 4.9 per centum; in Scotland, the number varies from 50 to 0.2 per centum at Edinburgh; in Germany, from 1.5 to 20 per centum, the low percentages being for open-air-fed herds, and the high rates occurring among dairy-fed cattle cohabiting in sheds.

That the fatality of this disease can be diminished is shown by the gradually lessening mortality from it in England and Wales:—

YEARS.	At all Ages.	15 Years.	20 Years.	25 Years.	30 Years.
1851 to 1860 . . .	2679	2961	4181	4317	4091
1861 to 1870 . . .	2475	2651	3928	4248	4026
1871 to 1880 . . .	2116	2036	8117	3619	3741

L. Schrötter's report[6, Dec. 14] on the distribution of phthisis in Switzerland shows that the inhabitants of high altitudes are not so free from this disease as supposed. The mortality tables for the period 1876–'86 show phthisis to be endemic in every part of Switzerland, no one district (Bezirk) being free. The deaths are fewer in high than in low districts, but not inversely in proportion to the altitude. Wherever there is a large industrial population the mortality is considerable.

C. Rouata tabulates[67] the mortality from phthisis in the city and province of Perugia, in Italy, representing a population of over 7,000,000 of inhabitants, for the period from 1882 to 1885, to demonstrate the great excess of deaths of females during the corset-wearing ages:—

NUMBER OF DEATHS FROM PHTHISIS IN EACH 1000 DEATHS FROM ALL CAUSES.

	Males.	Females.
Under 1 year of age	2.0	2.8
From 1 to 5 years of age	13 2	14.1
From 5 to 10 years of age	87.0	54.3
From 10 to 20 years of age	186.6	299 6
From 20 to 40 years of age	275.5	428.7
From 40 to 60 years of age	107.4	119.7
Over 60 years of age.	20.4	17.7

Diphtheria.—Langstaff [J 6 June 18] has made careful study of the geographical distribution of diphtheria, based on statistics of the disease since 1855, when it first appeared in the registrar-general's returns. Twelve per centum more females died than males, and, as the number of females living exceeds that of males by 5 per centum, there remains a difference of 7 per centum unaccounted for by disparity of the sexes. Fifty-seven per centum of the male diphtheria deaths and 51 per centum of the female occur during the first five years of life.

Grouping the districts by population, Langstaff finds the following distribution per 1,000,000 inhabitants:—

DISTRICTS.	1855-'60.	1861-'70.	1871-'80.	Average.
Dense population	123	163	114	100
Medium "	182	164	125	118
Sparse "	248	223	132	131

The increasing immigration into urban centres, probably, explains the increasing incidence in towns of diphtheria, which, in its fatal form, is essentially a disease affecting rural populations. It is uncertain how far the connection of diphtheria in the human subject with some allied affections in the lower animals may influence its causation and spread in rural areas, but it is clear that death from this disease is not induced by the same causes—density of population, for instance—as influence the general mortality.

Cancer.—The difficulty of establishing relative rates of mortality, even in allied and neighboring countries, is shown by the very considerable want of uniformity between even English and Irish tables.[2, May 18] The English registrar-general sends inquiries in the cases of "tumors" with the result of transferring many reported under the indefinite heading "tumor" to cancer. The necessity for considering age in statistical returns of this sort is shown by the abnormally small proportion of persons of the middle-age period in the Irish population.

Calculated rates per 1,000,000 are necessary[2, June 1] to afford means of judging of increase or decrease in mortality, as well as to show plainly and forcibly its geographical distribution. The mean annual death-rate from cancer in England and Wales among persons over 25 years of age, for the decade 1877–'87, has increased from 1186 per 1,000,000 for the former year to 1331 for the latter. In Ireland the mean annual rate for the same period was only 828, varying from 741 per 1,000,000 in 1880 to 935 in 1887, the rate of increase being practically the same. Among equal numbers living the mortality was 140 in England to 100 in Ireland.

Nomenclature.—H. T. Guss[144, Mar.] points to the sources of error in mortuary statistics through want of uniformity and precision in statements of causes of death, of which he recognizes three kinds: (1) the immediate or proximate; (2) the complicating or concurrent; (3) the remote or primary; either of which may be the actual, determining cause, without which the death would not have occurred.

In the Health Officer's Annual Report for the city of Philadelphia he instances the evidence of lack of medical training on the part of the registrar by the separate classification in the same table of such terms as "abscess of kidney" and "renal abscess;" "catarrhal fever" and "influenza;" "hypertrophy of" and "enlargement of heart;" "icterus" and "jaundice;" "fracture of femur" and "fracture of thigh;" "perforation of the bowels" and "of the intestines;" "septic-" and "blood- poisoning;" and of such other indefinite and discreditable expressions as *chill*, *colic*, *general congestion*, *cramp*, *nervous fever*, *neurosis*, *visceral neuralgia*, *cirrhosis*, *sclerosis*, *coma*, *sarcoma*, *disease of brain*, *liver*, *etc.*;

heart-clot, *hectic fever*, *purpura hemiplegica*, *syncope*, *tympanites*, *masturbation*, *boils*, *indigestion*, *hepatized lungs*, *indurated lungs*.

The statistics of rejections by medical examiners is vitiated by similar indefinite and unmeaning expressions as "grave pulmonary weakness," "bad physical condition," "heart disease."

Geo. F. Shrady[59, Sept. 14] asserts the necessity for words, in medical nomenclature especially, having a definite meaning expressive of a certain idea. He instances the indiscriminate use of the word *gland*, as applied to any collection of tissue whatever, instead of being used only in the sense of a secreting body as distinct from *node* or *nodule*, and quotes Donald Macalister,[15, Aug.] who suggests the importance of careful distinction between the words *tubercular* and *tuberculous*, *tubercule* and *tubercle*, *diphtheritic* and *diphtherial*.

Anatomists and pharmacists, as well as physicians, are giving attention to the subject of accurately significant nomenclature. Oldberg[107, July] insists that every term used in scientific nomenclature shall convey not only a correct idea, but as full an understanding as possible of the force or condition to which it refers, and must retain that meaning unchanged until, by common consent, its meaning is modified in a specific way.

The tendency to employ hyphened (hybrid) terms,[56, Oct.] like *typho-malarial*, or compound words like *typhoid pneumonia* or *diphtheritic sore throat*, applied to complications occurring in the course of well-defined diseases, only leads to confused and erroneous ideas of the character of the fundamental ailment.

E. Ray Lankester[50, Aug. 3] has suggested the words *mithradate*, *mithradation*, and *mithradative* as the generic equivalents of the terms *vaccinate*, *vaccination*, and *vaccine* to express the artificial production of immunity against disease, as the latter do the protection of the system against small-pox, deriving the terms from the name of Mithridates, King of Pontus (132 to 63 B.C.), who is reputed to have so saturated himself with poisons as to have been proof against their toxic influence.

HYGIENE.

BY JOHN B. HAMILTON, M.D., LL.D.,

ASSISTED BY

C. H. A. KLEINSCHMIDT, M.D., AND G. M. GUITÉRAS, M.D.,

WASHINGTON.

GENERAL CONSIDERATIONS.

THE following useful lesson on the benefit of sanitation is extracted from an official report by Lagneau[10 Mai] on the death-rate of French soldiers in the colonies. In civil life the rate for men from 20 to 23 is 8 to 10 per mille, and 9 to 11 in military service. In Algeria, from 1837 to 1848, the rate was 77, and has now been reduced to between 11 and 12, or very nearly the same as in civil life. In Tunis the proportion has, under proper sanitary care, been brought down from 60 to 12. The Oceanic possessions are the healthiest, 8 to 9 being the rate for Tahiti and New Caledonia. The rate in the French West Indies has been reduced from 91 to 20 per 1000, which is also the present rate for Cochin China, after having reached 115 at the beginning of its occupation by the French. In Tonquin, on the contrary, the rate from 1882 to 1885 was brought down to 40, but since then, under the influence of cholera, it has reached 96. At La Réunion Island the usual death-rate is 29 per 1000, but when it became the base of operations for the Madagascar expedition, and received the sick, the proportion rose to 70 and 113. Senegal is the worst of all. The climate is so deadly that the average death-rate from 1832 to 1837 was 148 per 1000; but even there sanitary care has brought down the proportion to 73, or about one-half.

Surgeon-Major Hutcheson[206 Mar.] has demonstrated that there is a marked and progressive improvement in the death-rate from cholera. He takes the statistics of European and native troops and persons in Bengal, for thirty years, 1853 to 1887, during which they have been accurately recorded, and he divides that period into two equal periods of fifteen years. This is his table:—

	Mortality from Cholera, per Mille.	
	1858–72.	1873–87.
European army	8.27	3.01
Native army	2.57	1.34
Jail population	7.94	3 27

In other words, the death-rate from cholera has fallen, roughly speaking, by one-half among natives and by nearly one-third among Europeans. The improvement evidenced by these figures is equally apparent if particular stations, such as Fort William, Dinapore, Agra, Allahabad, Peshawar, Cawnpore, Meerut, and Meean Meer, be taken as representatives of different parts of the Presidency; or, if those stations which have returned most cholera deaths during the period be taken, the abatement is still evident. Similar evidence is adduced regarding native troops and prisoners, and the contrast between the later and earlier years of the period is very clearly shown by tables and diagrams. These indicate that severe outbreaks are not so frequent as they were, and that when they do occur they are not so intense.

The Sanitary Commissioners conclude from Hutcheson's paper that a record of cholera is the record of one of the most preventible of epidemic diseases. The rapidly-diminishing incidence of cholera among the protected communities of Bengal is proof of the capability of modern sanitary science to mitigate the disease in every province and district of the empire. It is demonstrated that the mortality from cholera in the European and native armies and among prisoners confined in jails has declined to a remarkable extent in recent, as compared with former, years.

SANITARY MOVEMENT.

The year 1889 has been marked by very great activity in the development of sanitary science.

In Italy a school of hygiene[2 May 18] has been established at Naples, on the site of the old monastery della Sapienza. Annanni will give instruction in the practical methods of bacteriological research for hygienic purposes; Tuisini, on the chemical and bacterioscopic examination of water and air; Punzo, on the adulteration of drink and vegetable foods; Caparini, on the inspection of meat and alimentary substances; Passaro, on meteorological observations in relation to hygiene and on sanitary engineering; and Spatuzzi, on medical statistics and sanitary administration.

In South Africa[1078] the Inspector of Nuisances of Port Elizabeth is making close examination of the dwellings inhabited by Hindoos and other colored classes of the population. In the first twelve dwellings he visited, there were 38 men, 16 women, and 11 children. The rooms were thus not overcrowded, but they were excessively filthy. In the next nine dwellings inspected, he found 16 men, 11 women, and 13 children,—no overcrowding, but filthy in the extreme. These people have no beds, but lie on very dirty mats; floor-scrubbing or wall-whitewashing are as yet unknown to the Hindoos.

In Cape Town the municipal authorities[272, May 8] have been endeavoring to improve the sanitary condition of the city, which surely needs improvement, as it is shown that it has a death-rate of 33 per 1000, and it is intimated that even this is based on imperfect statistics, and is probably below the mark. Looking at the situation of Cape Town, built upon the side of a mountain sloping gradually to the sea, Pritchard proposes to provide that city with a system of right-angled sewèrs, which shall conduct the sewage by gravitation to a point near the southern mouth of the Salt River, and there discharge it by means of a line of cast-iron pipes at a point below low-water mark. A careful observation of the surface currents has led him to select this point of *débouchement*, as he considers that they set in such a way as to convey the sewage in a northeasterly direction, and well away from the foreshore. But certain portions of Cape Town lie so low that it will be impossible to convey their sewage by gravitation to the outfall-pipe. With this district he proposes to deal by conducting its drainage to five favorably-situated collection stations, and from these stations it will be forced by means of pneumatic ejectors to the main intercepting sewers. The sewers will throughout be ventilated at intervals of about 100 yards. For flushing purposes a certain amount of rainwater will be conducted into the sewers, and this will be supplemented by salt water pumped up as at present. Mr. Pritchard proposes to deal with the poorer quarters of the city by using McFarlane patent water-closets. One of these serves several houses, being divided into a corresponding number of partitions, and no action of its working parts takes place except once in twenty-four hours, when it is attended by an official. This should meet the case. Solid filth is to be dealt with by a "destructor." The cost of the whole work Pritchard estimates at £120,000.

In the United States, State medicine has made very rapid progress, as is well shown by Lindsley,[61, July 13] in the opening address of the Section on State Medicine, at the fortieth annual meeting of the American Medical Association, June 25, 1889. He summarizes the growth and progress of State boards of health, municipal and local boards, and voluntary associations, and the increased activity of the government. In an interesting paper read by N. S. Davis,[61, July 27] of Chicago, it is well shown that the American Medical Association, in its relations to public health, has been a constant and potent influence in elevating the standard of professional education in America and upholding the interests of the public health. And both in Europe and in this country female physicians have taken active interest in hygienic measures. In Chicago a Women's Medical Union, for the advancement of domestic and public hygiene, has been formed. In New York the Ladies' Health Protective Association has been investigating matters relating to the management of the public schools; and still another organization is reported,[1, July 20] having for its object the enforcement of sanitary laws in one of the worst streets of New York. Madame Gallois,[208, July 6] in an address made to the Union of the Women of France, has given a most excellent *résumé* of modern hygiene and the suppression of contagious diseases.

In the Harveian oration, before the Royal College of Physicians, James Edward Pollock[2, Oct. 26] proposed to inquire into the causes of the steadily diminishing mortality of the whole population, and considered it but fair to state that it was due to increased medical knowledge and to the greater recognition of natural laws of health and disease which have been instilled by teaching and enforced with such authority as the profession possessed. "But although the principles of hygiene are now taught in our schools, and enter into our examinations, it is obvious that the great sanitary measures which have been, and are, adopted throughout the country have their origin in the increased and improved education of the people."

A retrograde movement in England was made in the repeal of the Contagious Disease Act, the effect of which has been shown in the increase of secondary syphilis and gonorrhœa among the troops in the United Kingdom. The return from the War Office, bearing date June 25, 1889, gives the ratio of admissions into hospital for secondary syphilis per 1000 of strength of the troops at certain large stations in the United Kingdom (formerly under the provisions of the Contagious Disease Act) during each of the years 1881 to 1888. The increase noted is only what might have been expected. Syphilis is a disease which is just as amenable to cleanliness and proper treatment as it is aggravated by dirt and neglect. While the acts were in force, prostitutes could not propagate syphilis beyond a first or second examination, and the disease, attacked at the onset, seldom assumed among them a severe form. All this is now, unhappily, changed. Instead of the compulsory examination and detention in hospital, these wretched women swarm through the streets, spreading disease among soldiers to an extent of which we have in these returns an illustration as painful as it is striking. Probably we shall soon have similar returns respecting seamen and marines. But what would be the total could we have also the ratios among civilians and the women themselves?

Sir E. Chadwick,[6, Oct. 12] at the Sanitary Institute of Great Britain, read an address on the "General History and Principles of Sanitation," and said, in conclusion, that the great principle of sanitation upon which it was necessary to insist was circulation *versus* stagnation. The only true and vital sanitary plan was the drawing away at every moment, by an increasing central mechanical power, all the dead human and other animal excreta of communities, and the casting of such excreta upon the land undecomposed, so that they might, through the intermediate work of plants, break out into life again and give sustenance to man and animals.

In Germany, the German Society for the Promotion of Public Hygiene[6, Sept. 28] held its fifteenth annual meeting at Strasburg. It is stated by Krieger, of Strasburg, who is the chief medical adviser of the Government of Alsace-Lorraine, that since the regulation of the course of the Rhine, intermittent fever, which used to be very frequent, and which was followed by goitre and cretinism, had almost disappeared; among the troops garrisoned in Strasburg, for instance, it had sunk from 80 to less than ½ per cent.

In Belgium it is stated that the death-rate has been reduced very markedly as a direct result of the work instituted by the Sanitary Bureau of Brussels. In a paper by Martin,[14, p.879] at the International Congress of Hygiene, in Paris, it is stated that the average death-rate of Brussels, from 1868 to 1873, was 29.3 per 1000 of the population and the zymotic death-rate 4 60 per 1000. From 1874 to 1876 the Bureau d'Hygiène dealt with an annual average of 757 cases relating to sanitation; 237 insalubrious houses were improved and 399 places were disinfected. From 1874 to 1878 the average death-rate fell to 25.7 per 1000 and the zymotic death-rate to 2.02. From 1877 to 1879 the sanitary authorities had to deal with, on an average, 801 cases. They improved 325 dwellings and disinfected 243 premises. From 1879 to 1883 the average death-rate was 25.3 and the zymotic death-rate 1.68. The average sanitary works from 1883 to 1885 were 1916; no less than 1155 dwellings had to carry out sanitary improvements and 491 premises were disinfected. Finally, from 1886 to 1888, the average number of cases that came under the notice of the Bureau d'Hygiène annually rose to 2146. Sanitary works were executed in 1241 houses and 367 premises were disinfected. As the work of the sanitary authorities increases, we note a corresponding decrease in the death-rate, and, what is still more significant, in the death-rate from zymotic diseases. Thus, the average death-rate from 1884 to 1887 was 23.9 per 1000 and the zymotic rate 1.66, while the death-rate in 1888 was 22.9 and the zymotic rate 1.31. The zymotic death-rate has, therefore, fallen from 4.60 (average of the years 1868 to 1873) to 1.31 in 1888, and the general death-rate from 29.1 to 22.9 in the same period. On the other hand, the number of cases of insalubrity coming under the notice of the sanitary authorities, nuisances removed, sanitary improvements accomplished, or premises disinfected has increased from the annual average of 757 to 2146. As was stated at the International Congress of Hygiene, the Brussels Sanitary Bureau costs 48,000 francs per annum; and if we estimate every life saved at only £40, this outlay in sanitary administration is equal to an investment bringing in an annual interest of 1400 per cent.

Our Paris corresponding editor, de Pietra Santa, calls attention to a work on hygiene, by Jules Rochard,[1079] some fascicules of which have been published. The work is to be contained in ten books, as follows:—

1. "General Hygiene," which includes anthropology, demography, climatology, epidemiology (epizooties). 2. "Alimentary Hygiene," which includes aliments, potable water, and beverages. 3. "Urban Hygiene." 4. "Rural Hygiene." 5. "Hospital Hygiene and Public Charities." 6. "Industrial Hygiene." 7. "Military Hygiene." 8. "Naval Hygiene." 9. "Infantile Hygiene." 10. "International and Administrative Hygiene." The work is intended to be completed in 8 volumes of about 500 pages.

LIGHT.

Purification of Gas.—Ellice Clark,[159] in an address before the seventeenth annual meeting of the American Gas-Light Association, at Baltimore, October 16, 1889, concerning the purification of gas, said: "A process to assist in the purification of coal gas, which has met with a very large amount of success, consists in introducing free oxygen into the gas and continuing the purification by means of lime. The atmosphere is drawn through a purifier of lime to take out the carbonic acid. It is also drawn through caustic soda to take out the moisture, leaving only 21 per cent. of oxygen and 79 per cent. of nitrogen passing on to the furnace. This air is then drawn through, or rather pushed through, a series of retorts made of steel, hung vertically in a furnace. The retorts are 7 seconds in diameter, and may be from 6 minutes to 18 minutes in length. They are heated up to about 1400° F., so that you have a series of retorts suspended vertically in a furnace fed by producer gas. These retorts are filled with oxide of barium, obtained from the refuse of our lead-mines. The baryta is first converted into the nitrate, then into oxide; then broken up into pieces about the size of a walnut, and then simply placed in the vertical retorts. The air is drawn through the purifiers which I have already described, and passes through the retorts. The outlet-valve is weighted to 15 pounds above atmospheric pressure, so that the weight at the lower end is always at 15 pounds' pressure. When this oxide of barium is heated up to a light cherry-red, it seizes hold, so to speak, of the oxygen in the atmosphere, and it rejects the nitrogen. Therefore the nitrogen escapes at the lower end or the bottom of the retort back into the atmosphere as absolutely pure nitrogen, the oxygen remaining in combination with the barium in the retort. For five minutes the pumping-in takes place; then, by an automatic arrangement, the outlet-valve for nitrogen closes itself, the pumps are reversed in their action, and the oxygen is sucked up to the holder. That operation goes on six times every hour for twenty-four hours a day, every day in the week, and it has been repeated upon the same barium now for two years in succession without any deterioration whatever in the oxide of barium. On the contrary, the oxide of barium slightly improves in its capacity for yielding up oxygen. The process is a continuous one, and it is an exceedingly cheap one. In fact, in the coal districts of England oxygen of 90 per cent. purity may be made in a gas-works cheaper than coal-gas."

Reuss,[146 Aug.] in a review of the *Exposition Universelle*, says that illumination by gas is not sanitary,—at least, under the present conditions. In burning, gas liberates a heat which soon becomes insupportable, and products of combustion which it is difficult, if not impossible, to dissipate with our ordinary burners. The production of excessive heat and the diminution and vitiation of respirable air are, from a hygienic point of view, two inconveniences of capital importance. The gas company has endeavored to demonstrate, in its exhibit, the possibility of alternating, and even suppressing, these inconveniences. Illumination and heating by gas, as shown in the company's pavilion, are not antihygienic proceedings. It is certain that the electric light is preferable for theatres, concert-halls, reception-rooms, cafés,—wherever the profusion of light and the agglomeration of individuals cause a rapid ascent of the thermometer; not only is it non-heating, but, proper precautions being taken, it cannot occasion fire. (Report of de Pietra Santa, corresponding editor in Paris.)

HEAT.

Our corresponding editor in Paris, de Pietra Santa, sends us the following reviews on the above subject:—

Et. Ferrand,[211 Apr. 7 to 21] in a communication on modern heat by portable stoves and different methods of heating, has given the following *résumé* of the contents of his paper: "What has been said of the modern system of heating by slow combustion has reference to its superiority from the point of view of efficient calorification and economy (0.35 centimes instead of 2 francs in 24 hours), and to the objections, as regards hygiene, to the stove of the sort called portable, for this method, being more delicate, requires special measures of precaution. The mode of heating now under consideration has had, like all improvements, its delays, its interruptions, its objections, sometimes its victims. In this complex question of heating, more than in any other, the co-operation of all the elements of success is indispensably necessary: a knowledge of the dangers that may be incurred; the choice of apparatus with reference to the apartment; the certain working of the instrument, its parts, and annexes; sheathing in perfect condition from base to summit, with isolation; dispersion by elbowed tube; chimney-hoods and unequal height, sufficient for the roof; and, in fine, the certainty that the chimney is the sovereign cause of accidents. As the final element of success, we recommend a more careful domestic superintendence than was required by the former method of heating, which was almost always inoffensive, but often ineffective."

Heating of Conveyances.—Gautier$^{580}_{\text{Mar.10}}$ was charged by the Prefect of Police with the study of a new method of heating the public vehicles of Paris. It has been proposed to use heated bricks in a specially-arranged foot-stove, which provides for the exterior liberation of the products of the combustion of charcoal. Gautier reports that he cannot recommend this system in view of the fact that the use of bricks or any other combustible might be interdicted unless a direct draft could be secured by which the products of combustion should be conducted outside the conveyance. He proposes a system of heating by acetate of soda. This system is founded on the preservation of latent heat by the fusion of salts apt to undergo supersaturation, in consequence of which they slowly and successively disengage heat in proportion as these salts crystallize in a quantity of water insufficient to dissolve them. According to him this method is economical and perfectly safe. On the other hand, the system of heating proposed by Pernolet appears to him to answer the desiderata expressed by the Council of Health and Salubrity. It is obtained by means of heated bricks in a metal box resting on the floor of the carriage, and permitting the exterior exhalation of all the gases of combustion by means of a tubulure secured in a pipe which passes through the sides of the vehicle. Gautier would have an ordinance to definitely interdict the heating of all vehicles by any system whatever which allows of the interior liberation of the products of combustion.

AIR.

A discussion has recently been in progress in the Parisian medical press upon the subject of air contamination by movable stoves of slow combustion and feeble draught. Lancereaux$^{7}_{\text{Feb.18}}$ calls attention to the dangers which they give rise to from the large amount of carbon monoxide which they evolve and the insufficient means of having the poisonous gas removed. The effects upon the system may be either acute or chronic, depending upon the amount of the poisonous agent in the atmosphere. The question was thoroughly discussed by the Académie de Médecine.$^{3}_{\text{Mar.27}}$ The members agreed as to the dangers resulting from the use of these movable stoves of light draught, but differed somewhat as to the proper means to be employed to overcome the evil. Lancereaux proposed the prohibition of all movable stoves not having a draught sufficient to convert all the carbon monoxide into carbonic acid. Vallin considered this too sweeping, as it would condemn almost all stoves now in use, not only in France but in Europe. Léon Colin thought that the danger was often due to secondary causes, viz., (1) imperfect construction of our dwellings; (2) negligence or ignorance on the part of those having care of these stoves.

Brown-Séquard and d'Arsonval, in a report read before the Academy of Science, state that, from recent experiments made by them, it has been conclusively proven that the danger of inhaling expired air lies in the presence of organic pulmonary poisons, and not in the presence of carbonic acid. When the air is freed from the former by the action of H_2So_4 it becomes harmless. They found that mammalia could remain for one or two hours in an atmosphere charged with 20 per cent. of CO_2 without being noticeably affected and especially without lasting effect. (Report of de Pietra Santa, corresponding editor.)

A paper$^{38}_{24\,\text{Q}}$ read at the Hastings Health Congress, May 3, 1889, proposes the production of ozone in large quantities for the purpose of purifying the air of dwellings, etc. Hitherto this has been impossible from the difficulty of obtaining it in large quantities. The author of this paper proposes a new method.

The electrical machine of Weinshurst is used for this purpose, as it is found to generate ozone freely. The method is as follows: From the terminals of the machine two wires are carried, and are conducted by their terminals to an ozone generator formed somewhat after the manner of Siemens's, but with this difference, that the discharge is made through a series of fine points within the cylinders. The machine is placed on a table, with the ozone generator at the back of it, and can be so arranged that, with the turning of the handle which works the machine, a blast of air is carried through the generator. Thus, by one action, electricity is generated, sparks are discharged in the ozone generator, air is driven through, and ozone is delivered freely.

WATER.

We find[1022] a very complete and interesting article on water analysis showing, among other things, the work done by the laboratory which was established in 1887 in connection with the State Board of Health. Samples of water from all parts of the State, both for private and public use, were carefully examined and passed upon. The detailed report shows great care and thoroughness in its preparation.

The results obtained by I. Straus and Dubarry[457] from an exhaustive study upon the duration of the life of pathogenic microbes in water go to show that there is no radical distinction to be made between the pathogenic microbes and the common microbes of water, contrary to the opinion generally held, and, above all, defended by Meade Bolton.

The investigations of Kraus,[69] have led him to a different conclusion. He found that pathogenic organisms, when added to ordinary well- or river- water, soon lost their power of development and disappeared in a few days. And, furthermore, as some of these pathogenic bacteria—as, for instance, the typhoid bacillus and Koch's vibrio—were capable of development in sterilized water after, respectively, thirty-two and eighty-two days, the inference is that the very rapid disappearance of these bacteria was due to the direct action of the water bacteria. It thus appears that the latter organisms have as one of their functions the purification of water.

Carl Fraenkel,[58] from the results of his investigations upon the disinfection of springs and the number of germs in ground-water, strongly advocates the use of tube-wells instead of pot-wells.

The number of bacteria in ground-water is almost *nil*, and the water entering a tube-well is therefore almost invariably free from them. It is true that in the course of time a pellicle of micro-organisms forms upon the tube, but when this occurs the well can be easily disinfected by means of a concentrated solution of carbolic acid and sulphuric acid. The ordinary pot-well, on the other hand, is incapable of disinfection.

Filters.—G. Biron[55 July 18] describes and comments favorably upon a new filter constructed by Vanale and Brisse. It consists essentially of two disks, superimposed, one of porcelain, the other of carbon, combining, therefore, a mechanical and chemical filtration. It is superior to the Chamberland filter, from the fact that it can be easily handled without breaking, and the flow of water more rapid—300 litres in twenty-four hours. One of the advantages of this filter is that it cleans itself by means of an ingenious automatic arrangement.

In reply to a letter, asking as to the possible danger to cattle of drinking running water which had been contaminated by washing the hides or fleeces of animals which had died of anthrax, L. Pasteur[2 Apr. 30] answers that it appears, beyond doubt, that much danger of such contagion exists, from the fact that the bacillus of anthrax can live and reproduce itself in ordinary water. To prevent this contamination he sees but one sure method, and that is to filter the water through a Chamberland filter.

L. Dor[211 June 9], gives a detailed account of a series of careful experiments made to determine the efficiency of the Chamberland filter. From the results obtained he arrives at the conclusion that all micro-organisms are arrested by this filter and the water completely sterilized. But to insure this result it is necessary to assure one's self that the filter is not faulty. This is done by immersing it in water for ten minutes, so as to fill up the pores of the tube; then it is filled with air under the pressure of one atmosphere, and again immersed in water. If the air does not escape, the filter is good.

G. F. Cadogan-Masterman[26 Nov.] concludes, from a series of observations, that all filters now in use are defective, and recommends a simple arrangement of a cone of undersized paper supported in a glass funnel, and in connection with which carbon can readily be used as an absorbent and indirect oxidizer. While, of course, this arrangement does not exclude microbes, it certainly does not multiply them, as in the case of other filters.

Charles V. Chapin,[61 Oct. 12] in an article read before the fortieth annual meeting of the American Medical Association, June, entitled "The Purification of Drinking-Water for Cities," arrives at the following conclusions after a careful review of the subject: 1. The source of the water-supply must be made as pure as possible. 2. Storage reservoirs should be built. 3. The water should be filtered by the municipality (the Berlin system and the Hyatt and National filters being recommended). 4. The consumer must boil the water, if there be any reason to suspect danger.

The experiments of L. Heim,[6 Sept. 14] in the laboratory of the German Imperial Health Department, on the vitality of germs in certain kinds of nutriment, have led to the following interesting results:—

In non-sterilized new milk the germs of cholera bacillus remain as long as the milk has not become very acid. A somewhat high temperature, which accelerates the acidity, accelerates the destruction of cholera bacilli. Occasionally they could be seen for two or three days even in acid milk. Their extreme vitality was six days. In butter they could, in favorable circumstances, live a month; but in butter that had become caseous and in cheese-curds they could barely live a day. The bacilli of typhoid fever had a much greater power of resistance in milk; in non-sterilized milk which had become acid they were still visible after twenty-one and thirty-five days, but could not be found at the end of forty-eight days; in butter their vitality lasted three weeks; in whey and natural cheese, only three days. Milk which contains tubercle bacilli may produce the disease. These bacilli may live for three days in decomposing substances. Milk to which tubercle bacilli had been added was, after ten days, still infectious, but not so in four weeks, especially if decomposition had taken place in the meantime. In butter the vitality of tubercle bacilli lasted four weeks. In whey and cheese they were able to communicate the disease for a fortnight, and they remained visible for thirty-two days.

As opposed to the views of Pasteur, Chamberland, and others, we find Charles G. Currier, of New York, of the opinion that the filters bearing these names, as well as most other filters, are not to be depended on as water-purifiers. The following summary from an article by Currier$^{9}_{\text{Apr. 30, 87}}$ gives his views on the subject of the purification of water:—

Boiling sterilizes water, and within thirty minutes will have killed harmful bacteria.

Drugs and other agents acting chemically, if used in amounts which are commonly safe, do not sterilize water.

The prolonged heat which water undergoes in the usual process of distillation destroys all germs which may be in the water undergoing the process.

Ordinary filters, even if satisfactory as strainers, fail to remove all bacteria from drinking-water. So far from lessening the number in the original water, the filtering substance may allow a more rapid multiplication than these micro-organisms would ordinarily undergo in the unfiltered water on standing, and the germs of the disease, even if held back by the filtering substance, may be harbored in all filters.

The finer the substance through which the water passes, and the lower the pressure, the more perfect is the action of the filter in holding back the bacteria. Of all substances thus far furnished for domestic filters, porous rebaked porcelain, carefully selected, is the best.

When filtering is really necessary, it is, in general, best for the community that it be done carefully on a large scale, through sand-beds, upon which a firm layer of organic and inorganic matter is expressly produced by sedimentation, because of its valuable action in holding back the great majority of the bacteria.

A bad water filtered is less desirable than a pure water in its natural state. When, therefore, filtration is employed because of real danger of infection, the filtered water should, as a rule, be furthermore boiled, as the entire absence of sediment or its cleanliness does not insure that the bacteria of disease may not have made their way through the filter.

Lead Contamination.—An editorial$^{6}_{\text{Oct. 13}}$ calls attention to the report of A. Swann, medical officer of health to the borough of Batley, York, upon the contamination by lead of moor-land water-supplies. Swann refers to the circumstance that the danger of lead poisoning is increased where any appreciable amount of organic material is present in the water. Such a condition might, to some extent, account for the varying effect of a water which is at one time apparently innocuous and at another liable to produce plumbism.

On the other hand, Sinclair White[2] gives it as his opinion that the solvent action on lead by moor-land is due to the presence of a free organic acid derived from decaying vegetable peat. He bases his belief upon the following reasons: (1) that he has invariably found that the lead-dissolving power of these waters is in direct proportion to their acidity; (2) that filtration of an active acid water through a carbon filter removes alike its acidity and its power of dissolving lead; (3) that neutralization by limestone, lime, or bicarbonate of sodium has a similar effect. The exact nature of the acid he has, as yet, been unable to determine.

The question of the registration of plumbers has been receiving considerable attention. G. Walter Steeves,[187] in an address before the Liverpool Medical Institution, strongly advocated some such measure as a protection to the public, and as an efficient means of improving the standing of the plumbing trade. A resolution, in accordance with the views expressed by Steeves, was unanimously adopted by the institute.

Drasche,[1091] of Vienna, contributes a fresh and highly interesting article upon the relations of pure drinking-water to health, as shown by the experience of the Austrian capital. In 1873 the death-rate was 35.2 per 1000. But in that year the distribution of water from the Höllengebirge was made general throughout the city, and within a short time the death-rate fell to 25.35 per 1000. Up to 1874 the annual death-rate from typhoid fever alone was 700; since the improved water-supply of that year it has sunk to 169.

It has become evident, however, that the population of Vienna has outgrown the capacity of the Höllengebirge and other sources from which it obtains its water, and Drasche strongly insists that it is necessary to tap a higher and purer reservoir.

ALIMENTATION.

Milk Adulteration.—An editorial[99] commenting on the thirtieth annual report of the inspector of milk and vinegar for the city of Boston says that the figures given by that officer are open to considerable doubt. It appears from the report that the percentage of samples of milk below the average have decreased from 60 per cent. in 1883 to 8.49 per cent. in 1888.

Now, according to the reports of the State Board of Health, the percentage of samples of milk sold in Boston below the standard shows no such decrease, having been 67.76 per cent. in 1884 to 1885, and 52.31 per cent. in 1887. The *Journal*, to learn, if possible, which represented more accurately the condition of things, had samples collected and examined by a competent chemist, and found its figures to correspond with those of the State Board of Health.

Richardson,[1090 No. 19] chemist for the District of Columbia, reports, in Bulletin No. 19 of the United States Department of Agriculture, that, as a result of his examination of many samples of milk sold in Washington, he has come to the belief that oleo-oil, or some similar substance, had been churned into them to enrich poor or skimmed milk.

Cronigneau,[24 Oct. 29] from careful observation of the milk exhibit at the Paris Exposition of 1889, concludes that the two establishments most worthy of mention are the Arcy Farm, in the department of Seine-et-Marne, and one under the direction of the Agricultural Society of Central France. These are models in every respect, and evince a truly scientific and enlightened spirit in every minute detail of that complex process,—the production of a good milk. (Report of de Pietra Santa, corresponding editor, Paris.)

The proposal of Shirley Murphy, made at the Hastings Congress, that local sanitary authorities should be empowered to make regulations for the prevention of milk contamination due to eruptive disease of the cow is strongly indorsed.[6 May 4]

The study of the bacteria that appear in milk has received very careful consideration at the hands of Hueppe,[154 Jan. 15] of Wiesbaden. He has proved that lactic- and butyric- acid fermentation are each caused by a fungus. Prazmowski, Leborius, Fuchs, and Neelsen have also discovered other bacteria in milk.

A carefully-prepared article by Shirley F. Murphy[15 Jan.] strongly insists on the necessity of legislation in England to prevent the contamination of milk through the careless and unhygienic conditions now prevalent in dairy-farms. He suggests the improvement of the surroundings of the cows, especially the water-supply, the enforcement of strict cleanliness, and the necessity of sufficient light and ventilation. Stringent precautions should be taken to prevent the contamination of milk, both by human agency or from some communicable disease of the cow.

S. W. North,[15 Nov.] medical officer of health, York, gives a succinct account of the dangers to which the public is exposed through the agency of the milk trade. He recommends the following remedies: "No man should be allowed to produce milk for sale as human food, unless his cattle and his premises are subject to careful and systematic inspection by competent persons. The whole of the milk-producing cattle should be seen and examined at short intervals by a skilled veterinary surgeon, diseased animals being at once removed and the sale of their milk stopped. No person should be allowed to sell milk without a special license to do so, such license to be granted by the authority in whose district he proposes to sell milk. The premises and the cattle of every producer of milk, and of every intermediate vender, should be open to the inspection of the sanitary authority of the district in which the milk is sold. No milk should be stored or sold on any premises which are not wholly detached from the living- or sleeping- rooms of the inhabitants of the house or other persons. Every producer of milk, or vender of milk, should be bound to report to the sanitary authority of the district in which such milk is sold the occurrence of any disease among the cattle, or the persons of the household, or those engaged in the preparation or distribution of milk. All petty shops and similar places should be closed against the sale of milk and none licensed except such as are properly constructed and kept."

In a paper read by Ch. Girard[443 No. 4] before the French Society of Public Medicine some interesting figures are given, showing the relation between the milk-supply and infant mortality. During the last few years a law has been in operation in Paris requiring inspectors, appointed by the municipality, to visit and examine samples of the milk sold by every dairyman and milk-vender, this inspection to be performed at least once a year. The result has been a marked improvement in the quality of the milk sold, the proportion of moistened samples having fallen from 31 to 14 since 1881. During the same period the infantile mortality has decreased from 22.5 per 1000 to 17 per 1000, and, although the whole difference may not be due to this source, there can be no doubt that the improvement in the quality of the milk is one of the most important factors. (Report of de Pietra Santa, corresponding editor.)

Tuberculous Milk.—The question of how far a cow may become tuberculous before the milk becomes dangerous as a food-supply was ably treated by Harold C. Ernst,[99 Sept.28] of Jamaica Plain, Mass., in an interesting paper read before the Association of American Physicians, September 18th to 20th. Contrary to Koch's theory, that the danger was limited to milk coming from cows with tuberculosis of the lacteal tract, he states, as the result of his investigations: 1. That the milk from cows affected with tuberculosis in any part of the body might contain the virus of the disease. 2. That the virus was present whether there was disease of the udder or not. 3. That there was no ground for the assertion that there must be a lesion of the udder before the milk could contain the infection of tuberculosis. 4. That, on the contrary, the bacilli of tuberculosis were present and active, in a very large proportion of cases, in the milk of cows affected with tuberculosis, but without any lesion of the udder.

Klein[1093 May 27] states clearly and forcibly his opinion that tuberculosis in cattle and in man is the same disease, and that it can be communicated from one to the other by inoculation or ingestion. He states, further, that the milk of cows may contain tubercle bacilli, no matter what part of the animal is affected by the disease.

The Scottish Metropolitan Medical Society[1094 Feb.20] unanimously adopted the following resolution:—

"That this Society, thoroughly believing tuberculosis to be a systemic and contagious disease, urge upon the government (1) to stop the sale of milk from animals suspected of being affected with tuberculosis, (2) to suppress the consumption of meat from tubercular animals, and (3) to give compensation for a limited number of years."

In a lecture by Dujardin-Beaumetz[67 May 15] the opinion is expressed that the danger and frequency of the propagation of tuberculosis from eating tuberculous meat has been much exaggerated. He agrees with Nocard that it is an exceptionally rare occurrence. His opinion is founded on the fact that tuberculosis is not nearly as frequent among animals as is supposed, having been detected in only 0.5 per cent. of all cows killed in the Paris slaughter-house from August 1 to December 31, 1888. And, furthermore, the cooking to which we subject our food and the destructive action of the juices of the stomach and intestines are additional safeguards. With respect to milk, he thinks it impossible for it to become contaminated with the bacillus of Koch unless the animal is suffering from tubercular disease of the udder.

Tuberculous Food.—The International Congress of Veterinary Medicine,[3, p.380] convened at Paris, adopted the following resolutions proposed by Arloing: 1. Bovine tuberculosis should everywhere be classed as a contagious disease, and under the supervision of the health authorities. 2. Animals known to be tuberculous should be killed and their meat excluded from the markets. 3. A pecuniary indemnity shall be given to the owners. Furthermore, it was agreed that (1) it is necessary to eliminate all meats obtained from tuberculous animals, no matter what may be the degree of tuberculosis or the apparently healthy condition of the meat. 2. That the utilization of the hides and horny parts of the animals may be permitted after being properly disinfected. 3. That an indemnity equal to one-half the value of the animal as it stands should be granted. 4. That the use of milk from tuberculous cows must be prohibited. 5. All dairies must be subjected to a scrupulous inspection from time to time. 6. The practice of boiling the milk before using should be encouraged in all cases where one is not sure of the quality of the milk. (Report of de Pietra Santa, corresponding editor, Paris.)

Tuberculous Meat.—An editorial[2, Nov.2] very ably supports the view that the question of tuberculosis in connection with our meat-supply should be taken in hand by the government. It is, however, a good sign, it says, that so many cases are coming up for decision before the magistrates, and that, on the other hand, the butchers themselves are becoming quickened as to the sense of the importance of the situation. But the decisions of the law courts are very often uncertain and sometimes absurd. "The present system, or want of system, is radically bad. . . . . What we want, and what the medical profession must fight for, is a definite system of control, placed in the hands of thoroughly qualified inspectors, who shall have full power to condemn, without appeal, and destroy all meat that they may consider unfit for human food." Let it once be understood that the inspection of meat is not a sham, and butchers and cattle-dealers will be more prompt to detect tuberculosis during life.

Meat-Poisoning Ptomaines.—Polin and Labit[243, Nov.] give an interesting account of accidental poisoning by meat, which occurred in Camp D'Aror in May, 1887. Two hundred and twenty-seven men of the 31st Infantry Brigade were attacked within four days after the appearance of the first case, the greater number, by far, being attacked on the second day. The symptoms consisted principally of colic, nausea, and frequent and liquid evacuations, with violent cephalalgia, epigastric pains, profuse sweating and salivation, slight fever, and rapid, strong, irregular pulse. The average duration of the disease was six days. One death occurred.

After a very careful investigation, all causes were excluded except the meat served a day or two before, and which the cooks averred had had an unpleasant odor, although it seemed, in all other respects, good. (Report of de Pietra Santa, corresponding editor, Paris.)

Fish.—The report of Alexander Edington, to the Fishery Board of Scotland, states that the red coloration in salt fish (cod) is due to a bacillus; that this bacillus does not seem to be in itself injurious to man, but the fact that it may grow there shows that such fish might at any moment be contaminated with organisms of a virulent type. He suggests that boracic acid be used in the curing. The use of this acid to the amount of 3 per cent. is not hurtful to the material, and will preserve the fish comparatively free from putrefactive organisms. The salt heretofore looked upon as an antiseptic cannot be considered so, as the bacillus was found in it.

In connection with subject of fish poisoning it is of interest to note some observations of J. Lawrence Hamilton.$^{6}_{\text{Sept. 21}}$ He considers, with much adverse comment, the present methods of handling fish after capture. He objects particularly to the rude manner of handling and packing, the filth to which they are exposed, and the custom of keeping them on ice. The ice, he believes, only increases the extent and rapidity of decomposition, for it is not sufficient to freeze the tissues, and simply adds moisture, thus assisting the development of putrefactive and other bacteria.

He offers$^{6}_{\text{Oct. 19}}$ the following suggestions with reference to the preservation of fish: He advises the cleaning and bleeding of fish immediately after they are taken from the water, and keeping them frozen from that time until consumed. To accomplish the latter, he advises that dry-air refrigerator steamers should be constantly on the fishing-grounds to receive the fish and transport them to market. The fish, moreover, should be packed in peat-moss, to keep them separate from each other.

Wines.—From observations made by Rammier,[359, v.20, p.146] it appears that it is possible to communicate the bouquet of a good wine to a more common one by changing the ferment and using that of the desired wine. In this manner he succeeded in imparting the bouquet of champagne, Côte-d'Or, and Buxy to inferior brands.

Absinthe.—The interesting physiological experiments recently made by Cadéac and Albin Meunier, of Lyons,[262, No.6] indicate that the injurious effects of absinthe are due to the anise- and fennel- seed oils which it contains. (Report of de Pietra Santa, corresponding editor, Paris.)

Food Adulteration.—An investigation of food adulteration in the State of Minnesota, by Charles W. Drew,[105, Dec.15,'88] shows to what an alarming extent this injurious practice is carried on. Of 1084 samples of all kinds of food-stuffs examined, 470 were found adulterated and 614 of good quality. Drew very justly concludes that "the repression of such gigantic frauds upon the people of the State should demand deliberate and careful consideration from all public-spirited individuals, and should call for appropriate legislation upon the part of those who are vested with the power to enact proper and efficient restrictive measures, and to provide for their enforcement." He strongly advocates the enactment of a National Adulteration Law by Congress.

Bread.—The practice of using alum and sulphate of copper in the process of baking is condemned by Bouglants,[52, Jan.] in an exhaustive article on the subject. It permits of the employment of inferior brands of flour; it gives an increased and fictitious weight to the bread on account of the larger quantity of water which is retained thereby, and, finally, the innocuousness of these salts has not yet been demonstrated. (Report of de Pietra Santa, corresponding editor, Paris.)

Presence of Tin in Sugar.—T. L. Phipson, London, finds that certain samples of sugar which he has examined contain tin,—in one case as much as 0.04 per cent. of oxide of tin. He thinks this decidedly injurious to health, and cites a case where symptoms of colic and diarrhœa were attributable to this cause.

Saccharin.—An editorial[28, Mar.] treating of the recent controversy on the subject of saccharin says that the discussion may be considered as finished, with the result of a distinct gain and impetus to the use of the new agent. "The evidence of the best therapeutists is to the effect (1) that saccharin is quite innocuous when taken in quantities largely exceeding what would be taken in an ordinary dietary, (2) that it does not interfere with or impede the digestive properties when taken in any practicable quantity, and (3) that it may be taken for an extended period without interfering with the digestive and bodily functions."

Butter—Margarine.—From an elaborate series of observations, Ch. Girard and M. J. de Brevans[146, Dec.,'88] have concluded that margarine and other substitutes for butter are not so valuable as fats or butter, and that they are apt to produce intestinal derangements.

Tinned Foods.—Captain Segrave,[2, Nov.9] the British Consul at Baltimore, has sent a report to the Foreign Office upon the provisions preserved in tins for export from the United States. He points out that a serious danger lies in the use of certain materials for soldering the tin cans and making them air-tight. Too large a proportion of lead is often used in the solder, and, moreover, a flux, composed of chloride of zinc and containing free HCl, is applied to the surfaces to be soldered, which are, as a rule, the inside instead of the outside surfaces. It is suggested that a law should be passed rendering it compulsory to solder cans of provisions on the outside only, although it admits that much more general and comprehensive legislation is necessary to deal adequately with the impurities and adulteration to which food-supplies are liable.

The opinion that the practice of preserving articles of diet in tins may and does give rise to lead poisoning is strongly insisted upon by Fallon Percy Wightwick, and M. B. Dur[40, Feb.] verifies it by the history of three clearly-defined cases which have recently come under his observation.

Preserved Foods.—Poincaré and Macé[448, No.3] conclude, from their studies in the Pasteur Institute, that many preserved foods, both animal and vegetable, which to the naked eye appear in good condition, may, nevertheless, contain micro-organisms, and sometimes in very great number.

Leprosy and Food.—N. S. Durrant,[2, Sept.21] Government Medical Officer (Carriacon, Grenada, West Indies), relates the following interesting incident bearing upon the transmission of leprosy by means of food: He was called to see a woman suffering from the disease and having a large ulcer on her foot. When he arrived she removed a bread-poultice and threw it out of doors, where it was greedily devoured by the fowls. " I cannot help thinking," he goes on to say, " that if any such fowl was killed shortly afterward, and improperly cleaned, and perhaps imperfectly cooked, on a bacillus theory it might infect some individuals with defective gastric secretion not powerful enough to destroy the germ, and such opportunities of infection would frequently occur in places where leprosy was endemic."

HABITATIONS.

An editorial,[98 Mar.16] commenting on James B. Russell's address[1095] to the Philosophical Society of Glasgow, says: " From it we learn that nearly 25 per cent. of the population of Glasgow consists of families who live in single-apartment dwellings, and that close on 45 per cent. of families live in two-room houses. These houses are, for the most part, what may be called ' made-down houses,' or houses originally constructed as four- or six- apartment houses, but which have been subdivided by means of partitions and other structural changes.

" Russell very clearly indicates the fact that it is amongst the inmates of such houses that disease, more especially the zymotic and acute respiratory diseases, prevail, and raise the mortality of Glasgow. It is evident, as Russell states, that it is the duty of the authorities ' to get power, if they have it not, and to exercise it, if they have it, to improve the dwellings which exist, and to see that the newer ones which are being provided are up to a reasonable standard of wholesomeness.' "

Cyrus Edson,[59 Nov.16] in an interesting article, states that he considers sulphur dioxide as the best and most practical method of disinfection for dwellings after the occurrence in them of exanthemata of diphtheria. Clothing and bedding used in direct contact with the patient should be removed to a disinfecting station, properly equipped, and there subjected to heat of sufficient intensity to destroy all contagious matter. This method he believes will in future be pursued by the Health Department of the City of New York.

Cremation of Garbage.—Savannah, Ga., has voted[99 Mar.29] to have its garbage cremated, and has contracted for a Hughes crematory to be built. Its capacity will be for 50 tons per day, and the cost of the process is from 18 to 20 cents per ton.

Sewage.—Through the efforts of the State Board of Health of Massachusetts, a law has also been passed creating a Metropolitan Sewage Commission to construct, maintain, and operate, for the cities of Boston, Cambridge, Somerville, Malden, Chelsea, Woburn, and the towns of Stoneham, Melrose, Winchester, Arlington, Belmont, Medford, Everett, and Winthrop, such main sewers and other works as shall be required for a system of sewage disposal for those cities and towns; and for the cities of Boston, Waltham, and Newton, and the towns of Watertown and Brookline, another such system; both of which systems shall be in substantial accordance with the plans reported and recommended by the State Board of Health. Very great power is given the commission.[1006 Mar]

Experiments in the electrical deodorization of the London sewage, lately carried out, were highly promising. It is stated,[22 Apr] that the cost of dealing in this manner with 1,000,000 gallons of sewage would only amount to 13 shillings.

An ingenious contrivance,[6 Jan] was invented by Messrs. Scott & Co. for the prevention of leakage from sewers and house-drains. At one end of each length of pipe is a spigot which dovetails into a socket in the next pipe, the whole being sealed by liquid cement, which is run in through apertures leading to the socket. The joint is said to be absolutely water-tight and the drains to be readily laid.

Alfred Carpenter,[79 Oct] of Croydon, England, earnestly recommends sewage farming as applicable to all water-closet towns without exception. He quotes figures to show that in the Beddington and Wallingford district, where this method for the disposal of sewage has been in use for some years, the death-rate has steadily decreased, while the population and ratable value of property have increased. The same statement is made with respect to the borough of Croydon. He states, further, that in no single instance out of nearly 100 cases observed by him, "in which sewage has been utilized by broad irrigation, has any fact been proved to establish the allegations of 'insanitariness' which are sometimes raised against them."

With reference to this subject, it is of interest to note the heated discussion which has recently taken place in Paris between Cornil and Pasteur, the former advocating the method of "sewage farms" as the most practicable, and as being free from danger to public health. Pasteur, on the other hand, insists that there is great danger from this method of disposal of sewage, and urges the construction of a large cloaca to the sea. The French government has decided upon the former plan, probably from financial as well as hygienic reasons.

DISPOSAL OF THE DEAD.

The question of inhumation still has its advocates in England, as will be seen from the remarks emanating from the Church of England Burial Reform Association,[6 Sept. 11] and there is no question that inhumation, or the burial of bodies without the intervention of coffins, is immeasurably superior to the indirect method; yet general adoption of cremation seems a long way off.

Frederick A. A. Smith[26 May] states that it is the custom among some of the English undertakers to plunge a knife into the remains of the dead just before screwing down the lid of the coffin. The gases generated after death are so powerful that they burst open the strongest coffin, even the leaden ones; and the acrid fluids, by setting up galvanic action between the solder and lead, eat holes into it, and allow the putrid contents to ooze out into the vaults, and, filtering through their walls, poison not only the water, but the neighboring atmosphere.

In France, says our Paris corresponding editor, de Pietra Santa, the machinery for cremation is being rapidly improved, as the following seems to indicate: "A very curious experiment of rapid cremation was performed at the manufactory of the Parisian Company of Compressed Air, where Guichard, Municipal Councillor, had constructed a crematory oven, of which he is the inventor. The researches of Guichard were directed principally to the means of shortening the time for the incineration of bodies. He employs coal-gas, of which the jets are directed on the body by means of strong pipes. The results obtained were very satisfactory. In forty minutes a sheep of large size, weighing 50 kilogrammes (134 pounds), enveloped in a sheet and put into a wooden case, was reduced to ashes without the appearance of the least escape of smoke by the chimney or any perceptible odor. This first trial of the crematory oven of Guichard is reported to have been most conclusive, and new researches may still more abridge a funeral ceremony which it is important to render as short as possible."

The French Council of State,[153 June 20] in a decree have authorized incineration, but require the reception of the body and its incineration to be made under the surveillance of the municipal authorities.

A Congress of Cremation[153 Sept. 26] was held in connection with the International Congress of Hygiene, at Paris. The following propositions were adopted: 1. All governments should dissipate the obstacles which are still opposed in some countries to cremation. 2. All governments should organize cremation of dead bodies on battle-fields. 3. That there should be a technical commission created to give advice on all questions relative to the practice of cremation in Paris.

GRAVE-YARD PESTILENCES.

An editorial writer[93 Dec. 17, '88] reports that, at a recent meeting of the Scottish Burial Reform and Cremation Society, Sir Spencer Wells reports a remarkable instance which occurred in Yorkshire,[79 Feb.] where a number of scarlet-fever patients were buried in the church-yard. A part of that church-yard was closed, but was afterward included in the garden of the rector, who had it dug up, and the scarlet fever from which those patients had died thirty years before broke out in the family of that clergyman and spread to the surrounding houses. There are many instances in which other diseases have spread in the same way.

The Board of Health of Detroit, Mich.,[251 Nov.] announces 22 cremations in the city's crematorium between December 14, 1887, and July 31, 1889. The board indorses the crematory from a sanitary point of view, but is somewhat chary about recommending the process for other cases than death from small-pox. A law exists there which declares that bodies of persons who have died from small-pox cannot be removed for re-burial unless they have been previously incinerated.

Concerning cremation, F. Eklund, of Stockholm, Sweden, corresponding editor, informs us that V. Ackermann reached the following conclusions as a result of correspondence with many distinguished physicians and theologians: "1. From a sanitary point of view it represents the ideal of a safe process. In a short space of time (less than two hours) the body is reduced to an absolutely inoffensive substance—ashes. 2. It is more attractive to sentiment than interment. The repose of the deceased is not threatened. The remains may be kept reasonably near without prejudice to the health of the survivors. 3. It permits the use of the usual religious ceremonies, and consequently represents progress without a violent infraction of the existing order of things. 4. In larger communities, particularly in populous cities, it is advantageous from an economic point of view. The ashes are not bulky, and it is not necessary that cemeteries should occupy a spacious and valuable location at a considerable distance from the dwellings of the living. 5. It may be practiced everywhere, while the use of cemeteries is dependent on the condition of the soil and the density of population. 6. As a general rule, it does not encroach on the living. 7. By this method we avoid long transportation of bodies, with the danger of contagion arising from it (particularly by means of clothing, etc.). 8. In time of war and during epidemics (yellow fever, cholera, small-pox, probably also typhus, diphtheria, and many others) it has great advantages over inhumation." As to scruples on the part of legal medicine, the author passes them over lightly.

Johnson Herbert,[2, Sept.21] alluding to the returns published by the Home Secretary, concerning the number of bodies at present interred in the principal metropolitan burial-places, in which the total number of bodies registered as buried in metropolitan cemeteries is given as 1,276,875, states: "I am inclined to think the above figures are very much below the mark. It would appear the association purposes to approach the government with a view to obtaining fresh legislation preventing burial in improper soil, overcrowding, etc. The published returns of the Home Secretary cannot fail but to be of the greatest possible use, as far as London is concerned at any rate, and I would suggest that similar and correct returns be asked for of all the burial-places throughout England, Ireland, Scotland, and Wales. I think there can be no two opinions but that fresh legislation is urgently required, only it must be conducted on safe lines, in which case I do earnestly trust that the government will be solely guided in this serious matter by the ripe opinions of genuine sanitarians, most of whom, I am happy to say, are amongst the first rank in our own profession. I have come to the conclusion long ago that the Church of England Burial Reform Association knows practically nothing whatever about the sanitary aspect of the disposal of our dead, and, in fact, have, in my humble opinion, for a number of years now, been doing a vast amount of harm by advocating a system of burial in our grave-yards whereby the dead are harming the living by destroying the soil, fouling the air, contaminating water-springs, and spreading broadcast the germs of disease."

EMBRYOLOGY, ANOMALIES AND MONSTROSITIES.

BY W. XAVIER SUDDUTH, M.D.,
ASSISTED BY
ERNEST B. SANGREE, M.D.,
PHILADELPHIA.

EMBRYOLOGY.

THE past year has been one of considerable advance in the science of embryology.

In the studies of spermatogenesis much activity has been exhibited. D. Biondi${}^{460}_{\text{v.10,No.8}}$ presents a study in the development of spermatozoa in man. His observations were made before and after puberty. In the former condition the canals contain only round cells, lying in a single, sometimes double, layer on their walls, and more thinly dispersed towards their lumen after maturity. They assume a columnar arrangement, and may be divided into three zones or layers,—primitive cells, mother-cells and daughter-cells,—from which, according to Biondi, the spermatozoa are developed. He holds that the cells of Sertoli are artificial products.

E. Verson${}^{701}_{\text{v.13,p.100}}$ has found that the *bombyx mori*, on account of its simple construction, furnishes an excellent field for the study of the development of the spermatozoa, which arise from one large protoplasmic body in each gonoid division. This mother-cell contains a large nucleus, with nucleoli, and a large number of sharply-defined granules. Later on, parallel rays are thrown off from the larger mass of protoplasm, which also contain well-marked granules, which soon separate from the radial arms and become enveloped with a certain amount of protoplasm. These finally develop into well-defined cells containing nuclei. From the spherical form they change into larger or smaller tubes, which finally elongate into varicose filaments.

E. M. Nelson${}^{798}_{\text{p.310}}$ has made some observations upon the anatomy of the human spermatozoa that differ from the accepted description. He finds that the head, or spore, is oviform, with its smallest diameter nearest the tail. The spore fits into a cup, which may be plainly seen both from front and side views. At the bottom of this a calyx, more or less variable, is described by him. Between the cup and the tail there is a neck, or stem, then a joint, after which the tail is quite uniform. On the spore he describes a filament, hitherto unobserved, which serves to direct the course of the spermatozoa.

N. Kultschitzky$^{29}_{\text{Dec.,'88}}$ gives an able thesis on the maturation and fecundation of the ovum in the *ascaris marginata.* He concludes: 1. That the chromatin and nuclear matter arise from the same source, and that they are easily converted, the one into the other; that in nuclear division chromatin is found. 2. That the chromatin of a blastodermic vesicle undergoes certain well-defined changes in the process of development, and the quantity varies in different ova. 3. That it alone is permanent, as the other constituent parts disappear without leaving any trace of their existence. 4. That the ripe ovum possessed the power of developing an investing membrane, which, however, was never produced until after copulation with the spermatozoa. 5. That the achromatic substance which was formed by both spindles was produced from the protoplasm of the ovum, as in the division of all other ova. 6. The casting off of polar globules is a typical process of indirect cell division by karyokinesis. 7. That the stroma of the pronucleus in *ascaris marginata* is developed from the achromatic substance, and that in this it differs in its origin from pronuclei in other species, or else previous observations have been incorrect, for Fleming states that nuclear stroma is derived from the chromatic substance. 8. That studies in the formation of pronuclei offer a most excellent field for investigation, as, in his estimation, the origin of nuclear matter will thereby be solved. G. Platner$^{29}_{\text{May}}$ has made some interesting discoveries in the formation of polar globules. In the formation of the second polar globule the resting stage is missed, the spindle arising directly from the internal daughter-plate of the first polar globule. The resting stage is also passed over in the formation of spermatozoa. In both instances there is a reduction by division of the nuclear body previous to the development of the pronucleus in the ovum and the spermatozoid in spermatogenesis.

Charles Sedgwick Minot$^{248}_{\text{V.2,No.3}}$ presents an elaborate thesis upon the development of fœtal membranes in rabbits and man. His observations are particularly valuable in that they clear up a number of the dark places in our knowledge of the subject. He found that the process of membrane formation in rabbits was so different from that in man that little light was thrown upon the latter by a study of the former. He found the blood-vessels of the mucosa in a rabbit's uterus of seven days' and three hours' impregnation to consist of capillaries without any adventitia or muscular coat. Creighton $^{277}_{\text{v.12,p.544,'78}}$ found the blood-vessels of the placenta of the guinea-pig to be of like character.

In the uterus of eight days' and three hours' impregnation Minot found several variations in the accepted descriptions, especially of Masquelin and Swaen, $^{356}_{\text{v.1,p.25,'80}}$ who held that fibrillæ were present in the connective tissue at this stage, but Minot was unable to find them and doubts their presence. He also differs from the former observers in regard to the origin of blood-corpuscles from the substance of the epithelium, and regards the phenomena presented, as a hyaline degeneration of the epithelia, with hyperplasia of the degenerating elements.

In a uterus at nine days and three hours he found sufficient evidence to differ from the views of Ercolani, $^{794}_{\text{v.3,p.804,'78}}$ who held that the uterine mucosa entirely disappeared, the placental tissue of the mother arising as a new formation. Minot's preparations show all the stages of metamorphosis, and confirm the observations of Creighton and others upon the subject. Minot failed to find the multinucleated cells at this stage described by Masquelin and Swaen. The endothelial lining of the blood-vessels is considerably thickened, but he failed to find an intermediate stage,—endothelial and decidual cells,—which leads him to oppose Ercolani's suggestion that the decidual cells arise from the blood-vessels. The blood-vessels are filled with blood-corpuscles and coagulum, with few white blood-corpuscles, but they are nowhere numerous. His description of the position of the embryo also differs from that of previous writers, Van Beneden and Julin $^{356}_{\text{v.5,No.3,'84}}$ and others, who claimed that it lay across the uterus; whereas Minot found the dorsal surface of the embryo turned toward the placenta, with its long axis either parallel or oblique to the long axis of the uterus. In the later stages, however, it lies across the uterus.

In his observations of a uterus of eleven days' and three hours' impregnation, Minot came to the conclusion that the glands, while they degenerated, did not give rise to blood-cavities, as has been held by Masquelin and Swaen. He ascribes this failure, to correctly interpret the special phenomena observed, to faulty technique, which, in these later days, has been much improved.

In observations made upon uteri of from eleven to thirteen days' impregnation, he was led to the conclusion that the mesoderm was continuous with the glandular connective tissue of the uterus. This is greatly at variance with previous observations, and will require further investigations.

In his observations[1074] of the human fœtal membranes and placental attachments, Minot controverts the idea, advanced by Manille Ide,[795, v.14,'88] that the intercellular bridges of the rete malpighi are not protoplasmic, but processes of cell-membranes. We can thoroughly support Minot in his position, and refer to our article on the subject in the ANNUAL, vol. v, p. 407, 1888, where we discussed his special point. Well-preserved specimens leave no doubt regarding the protoplasmic character of the intercellular material. The deepest layer of the rete malpighi is composed of nuclei which lie in an undifferentiated bed of protoplasm, and possesses no membrane or any semblance of such a formation. Our observation upon the rete malpighi, in which we have considered it as the formative layer of the skin, has been extended in regard to time and also the number of embryos and fœtuses observed, and we have no hesitancy in pronouncing the descriptions that prevail to a considerable extent regarding the character of the deepest layer of the skin as erroneous in the extreme. This layer, composed of round or oval nuclei, with no distinctly differentiated cell-body, but lying in a bed of protoplasm common to all the cells of this layer, forms one of the most important organs of the body. In it arises the incentive for the development of all glands which open upon the surface of the body, together with the hair, nails, and the enamel organ of the teeth in mammalia, scales in fishes, and feathers in fowl. It therefore seems strange that such contradictory statements should find their way into print at this late date.

C. Phisalix[796, v.4,'88] has made record of some observations upon a human embryo 10 millimetres (39 inches) in length, in which he corrects a number of the statements made by His. He also made some new observations regarding the want of symmetry in the development of the two sides of the body. He did not regard it as due to pathological causes in this particular instance, but rather tended to attribute it to the result of habit. He would not decide against the views of others, who hold that it is an anatomical peculiarity of embryos.

V. von Ebner,[797, H.7,10,'86] has studied the origin of the protovertebræ in ringed snakes and their relation to the adult vertebræ. His observations tend to correct the conclusions of Remak, on the one hand, who held that the vertebræ were derived directly from the protovertebræ by secondary segmentation, and of His, on the other hand, who holds that the vertebræ are not directly, if at all, derived from the protovertebræ. Von Ebner says that the vertebræ arise indirectly, and not directly, from the protovertebræ, having their origin at a time when the latter are not defined, but consist of "independent complexes of embryonic cells."

Thomas W. Shore,[277, Oct.] from his studies on the membranes of the chick, comes to the following conclusions: The diablastic proamnion found in the chick, from the development of the primitive streak up to the fiftieth hour, resembles that found in mammals, this bounded laterally by the anterior vitelline veins. This is also another characteristic in common with the proamnion in mammals, which is bounded by the amphalomesenteric veins. The sinus terminalis, however, is venous. The "head fold" is formed by a forward growth over the diablastic proamnion, and not by a folding of the blastoderm. The head, tail, and lateral amnion folds are not formed by a "rising up" of the blastoderm, but are determined by the growth of the embryo and its sinking toward the yelk-sack, due to the weight of the embryo, and the resistance of the zona pellucida and the active forces of growth. The closure of the amnion sac is due to the meeting and coalescence of the lateral amnion folds, and is preceded by a considerable thickening.

G. Born[400, June] discusses segmentation in ova which give rise to double monsters. He found the ova of the pike best suited his purposes. Ova which gave rise to double monsters presented the ordinary cleavage, first, single and regular. He, however, believes that those eggs which divide first into two and then into six start with two segmentation nuclei and two germinal vesicles, and that a double fertilization occurs. Those ova which at first divide into three or four always perish. Droggul,[400, June] in discussing the process of ossification, claims that the osteoblasts do not multiply, but that the reproductive activity is exhibited by the cartilaginous elements, periosteal and medullary. Our observation on this point has led us to believe that the osteoblasts are replenished by the migrated white blood-corpuscles, except in the very earliest stages of ossification, which we have termed "interstitial," and described in previous articles in the ANNUAL. Here the osteoblasts are derived from the embryonal connective-tissue cells and present the same karyokenetic changes found in the growth and multiplication of mesoblastic tissue. There is one feature regarding the nature of osteoblasts, odontoblasts, and ameloblasts that has been largely overlooked or incorrectly described by writers on embryology, viz., that they are composed almost, if not entirely, of nuclear matter, and present no appearance of cell-body. These cells are found lying in a mass of protoplasmic basement substance, which is common to all, there being no appearance of differentiation into cell-body for each individual nucleus.

ANOMALIES OF THE HEAD AND THORAX.

Variations in the Human Skeleton.—W. A. Lane,[6 Mar.16] after discussing the pathology and physiology of some of the variations of the human skeleton, concludes that the words "disease" and "inflammation" are often used to explain what are simply the results of a physiological process. He maintains that just as the normal anatomy of each race is dependent for its existence upon a certain fixed relationship between the normal organism and its surroundings, so in each individual the same relationship obtains. Such abnormalities as thick skulls, in those who have carried heavy loads on the head, and osseous growths, such as the third trochanter, and the like, in those who have made exceptional use of certain muscles, are illustrations in point. By this reasoning he holds that many of the abnormalities found in children and in the aged,—mollities ossium, rachitis, and osteitis deformans,—can be traced to a physiological adaptation of the individual to his peculiar environment.

Absence of Auricles.—Alex. Robertson[218 Mar.] presented to the Glasgow Medico-Chirurgical Society a weak-minded patient destitute of auricles and auditory canals, the site on each side of the head being marked merely by a slight ridge of skin. There were various other cranial defects besides this. Hearing was present, though not so good as is customary in such cases.

Absence of Corpus Callosum.—Bruce[25, Mar.] describes a case of absence of the corpus callosum in a man who had, through life, exhibited no marked peculiarities. The psalterium of the fornix was also wanting. The frontal lobe, by reason of a change in the fissure of Rolando, was smaller than normal, whilst the temporal and occipital lobes were larger.

Deformity of Nose.—Julius Wolff[4, Jan.14] mentions a case affected with several facial deformities, the most marked of which concerned the nose. The organ was divided into two portions, each having two alæ nasi and two nasal cavities.

Liégeois[38, Jan.] notes a case of *congenital absence of the salivary secretion* in a man 64 years old.

Supernumerary Nipples and Breasts.—J. Bland Sutton,[5, Mar.] in discussing the subject of supernumerary mammæ and nipples, reaches the following conclusions: Accessory mammæ may arise (1) by atavism, (2) as "sports," and (3) rarely by dichotomy. Since, as a rule, mammary glands are found along the ventral aspect of the body, accessory ones in such situation are likely to be atavistic. In other situations they are probably "sports" or modified sebaceous glands, or the result of division. They occur oftener in men than in women. Poland[6, Dec.29,'88] showed a girl of 16 with a supernumerary nipple on the left side. Johnston[104, Mar.30] mentions a similar occurrence in a negro woman of 20. This is on the right side, an inch below the breast. Engström[48, Feb.] mentions 2 cases of rudimentary development of the left breast, and in both instances the greater part of the pectoralis major was also wanting. J. A. Wetherell[2, Mar.9] describes a singular growth on a man's chest and arm. It hung down 28 inches (71 centimetres), and swayed loosely as he walked. He thinks it a supplementary portion of the breast.

Muscles.—Labougle and Hédon[188, Jan.30] describes an instance of a third pectoral muscle, the tendon of which blended with that of the pectoralis major. Féré[452, Mar.] mentions a case of entire absence of the left pectoralis major in an epileptic. G. Kohler[8, Nov.30] describes a case of congenital absence of the pectoralis minor muscle of the right side, along with the sterno-costal portion of the pectoralis major.

Ribs.—Gage[59, Oct.19] reported to the American Orthopedic Association a case in which the ribs, from the sixth to the tenth, were wanting, and, in consequence, there had developed a rotary lateral curvature of the spine, hernia of the stomach, and displacement of the heart to the right.

Lungs.—Edwards[77 Sept.] reports a case in which he found that the left upper lobe of the lungs was divided, about its middle, into two distinct lobes. The right lung was normal. A somewhat similar case is described by Huguenin and Sorel,[7 Nov. 3] but in this instance the third lobe, about the size of a hen's egg, was at the lower border of the lung and independent of it. The subject, a child of 16 months, died of pneumonia of this accessory lobe.

Absence of Thoracic Duct.—Alfred Smith[277 July] describes a case of this kind, the first so far recorded. At a premature birth two fœtuses, both males, were born, the one with normal characteristics, whilst the other was so œdematous as to be three times as large as its brother. It resembled, even to color, two huge tomatoes attached, one representing the head, the other the body. The skin of the body was tense almost to bursting. At some places the subcutaneous tissue was $\frac{3}{4}$ inch (1.8 centimetres) thick, whereas that of the other fœtus was but $\frac{1}{50}$ inch (0.5 millimetres) in thickness. It was found that there was complete absence of the thoracic duct, with its tributary glandular system and lymphatics. Microscopical examination showed that in the skin and subcutaneous tissues were multitudes of large spaces, some empty, others filled with a colloid material, evidently coagulated lymph.

HEART AND CIRCULATORY SYSTEM.

J. H. Parkinson[147 Mar.] reports a case of *dextrocordia.* The deformity had not inconvenienced the man. Gardner Cox[99 Mar. 30] also mentions another instance. J. H. Pryor[259 Apr.] details an interesting malformation of the heart of a child aged 7, dead of tubercular meningitis. The heart was hypertrophied, with insufficient tricuspid, and incomplete interventricular septum. The pulmonary artery was wanting, the right and left ventricles both opening into the aorta. No signs of endocarditis. Foramen ovale closed. No opportunity was allowed to observe the manner in which the lungs received blood. Eugène Révilliod[197 Mar.] details a case in a child of 3 months in which the heart was found to have but one ventricle, and with the auricles incompletely separated. With this there were various arterial and venous anomalies. Stintzing[5 Sept.] describes an interesting case of insufficiency of the pulmonary valves.

Miura[20 Feb.] reports an instance of congenital eccentric hypertrophy of the right ventricle, with but two large leaflets composing the tricuspid valve. The left ventricle was atrophied. The vena cava superior emptied into the left auricle.

Shepherd[277 Oct.] reports several interesting vascular anomalies: 1. The right subclavian arises from the descending aortic arch, the right vertebral from the common carotid, and the right pulmonary vein opening into the vena azygos major. 2. There is absence of the right inferior thyroid artery, its place being taken by a large branch of the innominate artery. The left inferior thyroid rises from the left common carotid. 3. Double inferior vena cava. 4. The left kidney is situated between the common iliac arteries, receiving its blood from an artery that springs from the aorta at its bifurcation.

Shepherd[96 May] details an anomaly of the lingual artery hitherto undescribed. It was found coming off from the external carotid, in common with the superior thyroid, opposite the upper border of the thyroid cartilage. From here it passed upward and inward across the sterno-hyoid muscle to the hyoid bone, which it crossed internal to the lesser cornu. The rest of its course was normal. The same writer[9 Mar.16] mentions a unique anomaly of the thyroid. The right arose from the common carotid, whilst the left had its origin from the innominate. In another instance he[282 Feb.] describes a very large thyroidia ima, which arose from the innominate and divided into four branches, which almost covered the central part of the trachea. E. Potherat[7 Apr.5] gives a case in which the left thyroid arose from the common carotid about an inch (2.5 centimetres) below the bifurcation of the latter.

John B. Deaver[112 Mar.] reports 18 cases of anomalies in common carotid artery out of 545 subjects dissected. Of this number, 9 were of the left and 12 of the right common carotid. The most important and frequent were those instances (5 in the left, 2 in the right) in which the carotid passed in front of the trachea. Shepherd[282 Aug.] exhibited a specimen showing the right subclavian arising from the descending arch, and passing upward, between the trachea and œsophagus, to reach its normal position in the neck. W. P. Munn[61 June 15] showed to the Allegheny County Medical Association a specimen in which the innominate artery was wanting, the two carotids arising at the ordinary spot for the innominate. The left subclavian is first given off, then the right, which passes behind the three other vessels. Gordon Brodie[277, Jan.] describes a specimen in which the place of the innominate is supplied by a short, thick branch, which gives off two branches on either side of the trachea to the carotids. Carpentier and Bruneau[181, May] have written a careful paper on arterial anomalies of the upper extremities. Charles[277, July] reports a case in which he found the innominate veins transposed and a persistent left superior vena cava. Effinger[84, Apr. 13] describes a case of double vena cava superior.

C. H. Achard[7, Nov. 22, '88] presented a specimen of partial duplication of the central canal of the spinal cord in a man who had suffered from Pott's disease. One canal was in front of the other and both were lined with ciliated epithelium.

ALIMENTARY TRACT.

Œsophagus.—Melkus[23, Oct.] mentions the case of a child which died on the eighth day, and in which it was found that the œsophagus ended blindly about $\frac{1}{8}$ inch (1 centimetre) above the bifurcation of the trachea. From the cardiac end of the stomach the œsophagus rose a short distance and opened freely into the trachea. A somewhat similar case is described by Leven,[20, Dec. 4, '88] except that the trachea divided into three branches, of which two went to the lungs, whilst the third opened into the stomach. This child also lived eight days. Koslowsky[20, Mar.] reports a case of congenital fistula of the œsophagus.

Ileum.—Leopold Hudson[2, Feb. 23] showed to the London Pathological Society 3 specimens of *congenital abnormality of the ileum.* The first was a hammer-shaped Meckel's diverticulum. In the second, 36 inches (0.9 metre) above the ileo-cæcal valve was a crescentic diaphragm containing an aperture but $\frac{1}{4}$ inch (6 millimetres) in diameter. This was from a man of 62, who had died of emphysema. The third case was that of a boy of 8, who died from intestinal obstruction. Thirty-eight inches from the ileo-cæcal valve was found a stricture $\frac{3}{4}$ inch in length and barely admitting a probe. M. S. Kakeles[59, Dec. 16, '88] reports the result of an autopsy on a man who died of strangulation of the bowel. A loop of the intestine was found caught in an opening in the meso-rectum, which the writer thought to be congenital.

Loomis[59, Aug. 31] describes a case in which, 20 inches from the ileocæcal valve, there was a diverticulum 8 inches (20 centimetres) long. The specimen was from a woman who had shown no symptoms of intestinal trouble. With regard to the condition of imperforate ileum, Sutton[5, Nov.] contributes an interesting article. The cause is traceable to the vitello-intestinal duct. When the intra-abdominal segment of this duct persists, there is found a more or less marked diverticulum proceeding to or toward the umbilicus. Again, the obliteration process may go too far, resulting in partial or complete stricture of the ileum or even complete disappearance of the ileum at the point of union. He has seen 3 cases, 2 in the ordinary dissection of still-born children, and the following, which he diagnosed during life: An infant of eight hours showed signs of intestinal obstruction. Upon making section, a gap of 2 inches (5 centimetres) was found where the ileum was merely a shrunken cord. The parts were united, but the child died six hours after.

Rectum and Anus.—MacCormac[2, Feb. 28] mentions the case of an infant of 2½ years, in which the rectum opened posteriorly to the anterior superior spine of the ileum.

Kellar[112, Nov.] mentions a case in which there was obliteration of the anus and apparently of the rectum, as an incision 1½ inches (3.7 centimetres) deep could not reach it. The escape of fæces from the penis seemed to show a connection with the bladder. No autopsy was allowed. Another instance is reported by Pritchard,[6, Aug. 2] in which the rectum ended 1½ inch from the anus. An artificial anus was successfully made in the left iliac region.

GENITO-URINARY SYSTEM.

The Kidneys.—R. B. Mahon[277, Jan.] relates a case in which the right kidney of a female subject was found in the right iliac fossa and supplied by fine arteries from the aorta. Three veins led from it, and the ureter arose by three branches, which soon united.

Lespinasse[188, Apr. 28] reports a case in which there was but one kidney, having the form of a horseshoe, placed transversely across the spine, and with two ureters. Lamarche[122, Feb.] records an almost similar instance. Another is given by Paul Bezançon,[7, Apr.] in which the left kidney was wanting. All were female subjects. Thiercelin[7, p.193] mentions a case in which he found the kidneys united by a band of renal substance. Sébileau and Modiano[7, May] describe an anomaly in the kidneys of a woman 60 years old. The right kidney was very small, but was possessed of two arteries, two veins, and two ureters.

Bladder.—J. T. Winter[27 Apr.] describes an interesting case of absence of the urinary bladder. The patient, a female, now 9 years of age, was 2 years old before the abnormality was discovered. The meatus urinarius, vestibule, and labia minora are entirely wanting, and the labia majora marked only by two small folds of skin, about 1 inch (2.5 cemtimetres) long and 2 inches (5 centimetres) apart. The ureters discharge externally just inside the anterior edge of these little folds.

External Genito-urinary Organs.—Bidwell[760 May 4] reports a case of precocious physical development in a boy 5 years old. During the last year he has been subject to erections and seminal discharges, and now, at the age of 5 years and 2 months, his condition is as follows: Height, 4 feet 3½ inches; waist measure, 28 inches; weight, 82½ pounds; circumference of head, 20½ inches; neck, 12¼ inches; biceps, 9 inches; calf, 12 inches. Hair of head very thick and black; eyebrows almost meeting and quite heavy; downy moustache, at least ⅜ inch long; a few hairs under the arms and about the nipples; heavy growth of hair on the pubes; penis and testicles the size of those of most boys of 17 or 18 years; body and limbs plump and well developed; voice, a deep bass; face apparently 13 or 14 years old. Mentally, he is still a child.

Collier[2 Feb. 23] describes the case of a child, dead at three weeks, that was destitute of a penis. The urethra emptied into the rectum through its anterior wall. The other organs were normal.

Latter[277 July] reports the dissection of a rabbit in which he found an entire absence of the generative organs from the right side, and of the excretory organs from the left side of the body. The animal had appeared to be perfectly healthy.

Penis.—Another case is mentioned by Woodruff[61 Jan. 2] of a Scandinavian whose penis was but 1½ inches (3.7 centimetres) in length and ⅜ inch (9 millimetres) in diameter. His appearance was that of a well-developed woman.

Macauley[22 May 16] reports a case of rudimentary penis in a man of 45 years of age. No hair grew on his face, and his characteristics were unmistakably feminine.

Crabb[176 Dec., '88] details a case of atresia of the glans penis. The urethra opens by two small orifices, one on either side of the frenum. Joseph Watson[53 Dec.3,'88] describes 3 cases of imperforate urethra, 2 in males and the third in a female. The latter is mentioned further on. In the first patient, a child a few hours old, no orifice whatever could be found, but, upon passing a knife ½ inch into the glans penis, the urethra was reached, and no further difficulty experienced. The second case required that the knife be passed the whole length of the penis before the urethra could be found.

Lockwood,[6 Jan.8] exhibited to the Harveian Society an infant of 9 weeks, whose left testicle lay in the perinæum, apparently attached to the tuber ischii. The corresponding side of the scrotum was empty.

Voitzekhovsky[1076 No.5,'88; 26 May] describes an instance of high-grade hypospadia simulating hermaphroditism. When an infant, the patient had been christened with a boy's name, but, after a time, the old women of the neighborhood persuaded the mother to have the child rechristened with the name of a girl. At the age of 17, however, his marked male general characteristics compelled a further and final change back to the name of a male. Weis[84 Feb.16] reports 2 somewhat similar cases, one in which the true sex was discovered only when the person was 15 and in the other 18 years old. E. Lesser, of Leipzig,[20 June 1] reports an observation of five generations, of which members of the third and fifth were free from the deformity, whilst most of the members of the second and fourth were affected.

Vagina, Hymen, and Uterus.—Joseph Watson[53 Dec.3,'88] describes the case of a child 2 years old in which the labia were found grown together throughout almost their whole extent, but a knife easily remedied the difficulty.

G. E. J. Green[22 Mar.20] describes a case in which he found the urethra in the position usually occupied by the clitoris. The only thing suggestive of the latter organ was the bulbi vestibulæ vaginæ, which were united in the middle line by a small body composed mainly of veins and spongy tissue. There were no nymphæ. The other organs were normal, and she had borne 4 children.

A case of absence of vagina is reported by W. P. Morton.[234 Mar.] At intervals of five weeks the patient experienced cramp-like pains in the abdomen, with a sense of bearing down, accompanied with headache. No enlargement of the abdomen. The external genitals were well formed, but not a trace of vagina or uterus could be discovered. Where the fossa navicularis should be was a canal 3½ inches (8.7 centimetres) deep, the result of frequent attempts at coition. Bonnain[192, June] mentions a case in which not only the vagina was wanting, but perinæum and anus as well. One common cloaca served all purposes. The woman had been delivered of a healthy child. Another case is mentioned by Piering[84, Jan. 12] and also one by Meyer, of Saxony.[2, Jan. 1] Sänger[2, July 27] reports a case of a woman who became pregnant, though the vagina was congenitally closed, with the exception of a minute hole in the septum.

Blake Bigelow[59, Dec. 15, '88] relates the case of a girl of 15 whose hymen was imperforate and fully ⅝ inch (15 millimetres) thick. The menses of some months had been retained, and, upon dividing the membrane, some 3 quarts (litres) of an offensive inky fluid escaped. Several cases of this abnormality have been reported during the year. Brunes[23, Feb.] gives 2. The first, a girl of 19, had never menstruated, but had experienced molimina. The external genitals were normal, but the vagina ended blindly. No indication of either uterus, Fallopian tubes, or ovaries could be made out. The external genitals of the second, a woman of 21, were likewise normal, but, in her case, in addition to the absence of the uterus and its appendages, the vagina was also completely missing. J. H. Neale[2, Jan. 12] and Bibb[143, Apr.] report cases similar to the last mentioned, except that the vagina was present.

Hatherly, collaborator, Nottingham, England, reports the case of a healthy woman of 22, admitted to the hospital to undergo an operation for atresia vaginæ, but, as the vagina was found to end in a *cul-de-sac*, and neither uterus nor appendages could be discovered, no operation was performed.

In another instance, described by Aleksa, of Poland,[26, Nov.] though, like the last mentioned, neither uterus nor appendages could be made out, yet the patient suffered monthly molimina, with dragging sensation, headache, and painful tumefaction of the breasts. At these periods there is also hæmaturia, and he queries as to whether this is vicarious menstruation. The vagina ends blindly, and, though the woman has intense and constant sexual desire, she frequently faints during the act, and is usually ill for several days afterward.

H. S. Gray[213, Mar.] reports a case of bilocular uterus, in which there was a twin pregnancy, the right horn aborting at six weeks, while the left went on till full term. L. Secheyron[236 Apr.] gives another instance, but in this there was a vaginal septum corresponding to that in the uterus.

J. Praeger[317 Apr. 27] reports a case of rudimentary uterus bicornis, with total absence of the vagina, in a girl 20 years old.

H. E. Desrosiers[122 June] reports an instance of double uterus. Both uteri were perfectly formed and distinct, and each with its own cervix, though there was but one common vagina. The woman had given birth to a healthy child.

Another case is given by Mulligan,[170 Aug.] in which two well-separated vaginas lead each to a uterus 2½ inches (6.2 centimetres) in depth. The vaginas were nearly of the same size. The woman had miscarried twice within the last three years, the mishap usually occurring when she was two months pregnant. Besides the one just mentioned, 3 cases have been reported within the last year. One is by J. C. Heppenheimer.[109 Mar.] Below the normal canal was a second rudimentary vagina, ½ inch (12 millimetres) deep, but provided with a hymen. The other 2 are given by H. S. Gray.[218 Mar.] In one of these the septum was vertical, in the other horizontal, and in both division of the septum was required in order to deliver the patient.

EXTREMITIES.

Syndactylism.—Seven cases of syndactylism have been recorded this year. An interesting one, showing marked heredity, is that given by Verneau,[73 Mar. 16] in which the deformity existed through five generations.

Colin[73 Mar. 16] reported to the Anthropological Society a somewhat similar case. The father of the child affected with congenital syndactylism had himself been born with the same deformity.

Bégouin[188 Jan. 20] mentions a very singular form which he witnessed. The index and third fingers of the left hand were joined at the tips, forming a complete arch, from under which the middle finger projected.

Proust[14 Apr. 2] describes a case marked by a number of deformities. The right foot was clubbed and circular furrows existed on the left thigh. The fingers of the right hand were webbed, the index and little fingers being represented by only the first phalanges, while the phalanx was wanting on the index finger of the left hand.

Another curious anomaly is reported by R. Redard.$^{55}_{\text{July 13}}$ The infant, a boy, had above his left ankle a deep furrow, which visibly retarded the circulation. There were also similar furrows on both index fingers. The middle and index fingers of the left hand were connected at the tips, the third phalanx of the ring-finger occupying the intervening space, and all three being united by a membrane. W. S.,$^{61}_{\text{Jan. 19}}$also reports a case. J. Wolff, of Berlin,$^{226}_{\text{Nov. 1, '88}}$ and Fuchs, of the same city,$^{84}_{\text{Apr. 6}}$ mention cases of the same deformity.

W. A. Smith$^{9}_{\text{Mar. 16}}$ mentions a case in which a small supernumerary digit projected from the junction of the first and second phalanx of each little finger. A case is given by C. N. Cavanaugh$^{9}_{\text{May 4}}$, where the supernumerary digits were on both hands and feet, articulating with the metatarsal and metacarpal bones, respectively.

An interesting case of the kind is reported by Dauvin.$^{24}_{\text{Feb. 17}}$ Each hand is provided with an extra thumb, and slightly below the articulation of each little finger is the vestige of a supernumerary finger, amputated during infancy. In addition to this, three fingers of the right hand are partially united by a membrane. Each foot also presents a different variety of polydactylism and syndactylism.

Colombe, of Lisieux,$^{17}_{\text{Dec. 26, '88}}$ gives an instance of a child that had six fingers on each hand. Its mother, a cousin, and a grand-aunt were similarly affected.

Marsh$^{6}_{\text{Oct. 13}}$ mentions the case of an infant, 3 days old, which was affected with polydactylism, double hare-lip, cleft palate and double talipes varus. With regard to this deformity, Kollman$^{25}_{\text{July}}$ holds that, in cases where the supernumerary finger develops at the border of the hand, the phenomenon is not pathogenic but theromorphic,—that is to say, a special form of atavism.

J. V. Shoemaker,$^{760}_{\text{June 23}}$exhibited a case of syphilitic dactylitis that had recovered under treatment without losing a nail. Another case of this rare affection is reported by Frederick W. Lowndes.$^{6}_{\text{Mar. 23}}$ It also was completely cured.

Tachard,$^{8}_{\text{June 13}}$reports a case of megalodactyl, occurring in a young Arab girl 12 years old. The malformation was confined to the third finger of the right hand, which was twice the size of the corresponding finger on the left hand.

Vincent$^{211}_{\text{Dec. 23, '88}}$showed the National Society of Medicine of Lyons a child of 9 months affected with a gigantic development of the front part of the left foot, the lower leg and thigh of the same side being also notably enlarged. Five similar cases were mentioned by Delon and Poncet.

A number of cases of micromelia have been reported during the past year. J. H. Morgan[2] showed to the London Medical Society an instance of arrested development of the arm. The scapula was of the normal size, but the humerus and bones of the forearm were rudimentary.

Hutchinson[2] exhibited to the London Pathological Society the skeleton of a dwarf. The vertebræ, ribs, and head were of normal size, but the limbs very short. He was inclined to attribute the deformity not to rickets or similar cause, but rather to reversal to a lower type.

The President of the Royal Academy of Medicine, Ireland,[6] exhibited a full-term fœtus, which had one of its hands attached to the side of an extremely short forearm. The thumb was missing from each hand. Lange[1] mentions a case of very short humerus, the head of which was situated in the infra-spinous fossa.

Chaput[7] describes a congenital malformation of the arm of a man of 55. The elbow, forearm, and hand were apparently wanting, though at the outer aspect of the stump was a small, soft projection that slightly resembled a hand. Ely[59] showed to the New York Pathological Society a child whose arms and legs were almost rudimentary as to length, but of normal thickness. A case of this anomaly is also given by F. Eklund, of Stockholm, corresponding editor, and another by A. Chaintre.[211]

Labougle[188] relates a case in which there was entire absence of the musculo-cutaneous nerve, its place being supplied by the external branch of the median.

Bertaux[181] describes 2 cases of anomaly in the nerves of the arm, and the same writer[181] gives voluminous notes on anomalies of the brachial plexus and its terminals.

Labougle[70] describes a variation of the palmaris brevis, and also[188] reports a case of bifurcation of the long abductor of the thumb.

Brooks[2] believes that the anconeus, which is often considered as part of the triceps, is not so, nor was it originally an independent muscle, but belonged to the flexor carpi ulnaris. He illustrates his point by many examples from the lower animals.

Hans Eppinger[8] describes an abnormal muscle,—musculodiaphragmatico-retromediastinalis,—which he has found four times with slight variations.

F. M. Thigpen[12, Feb.] describes a case of independent fibular flexor of the second toe.

Rudolph Matas[12, Feb.] describes a dissecting-room subject which was found to be destitute of the plantaris on each side, but which had an anomalous muscular slip. This arose (1) from the anterior surface of the solens, (2) from the intermuscular septum, and (3) from the inner border of the tibia, and attached to the inner tuberosity of the calcaneum.

Freeman[59, Mar. 16] showed to the New York Pathological Society the arm of an infant, 4 months old, destitute of the radius.

McLaren[277, July] describes a case of absence of the tibia. The deformed leg, which was removed from a child 2 years old, was well nourished. The foot was in the position of extreme equino-varus, and the muscles of the leg were all present, though, of course, differing in their attachment considerably from the normal.

A case of congenital absence of the fibulæ is mentioned by Thomas.[6, May 4] The corresponding parts of the feet, the two outer metatarsal bones and phalanges were also wanting, and the feet were in a condition of talipes valgus.

MONSTROSITIES.

Formation of Monsters.—Pouchet and Chabry[22, Feb. 14, '90] brought to the attention of the Paris Society of Biology some interesting observations on alteration in structure in animals and vegetables under changed chemical conditions. Animals of the lower marine class, larvæ of the sea-urchin, for instance, were placed in sea-water, deprived of a part or the whole of its calcareous salts. In the first instance the calcareous spiculæ developed slowly and imperfectly, and in water with no salts death followed a tardy and imperfect evolution.

Knox[218, Apr.] read before the Glasgow Obstetrical and Gynæcological Society a paper on the origin of some congenital deformities, those related chiefly to the central nervous system—spina bifida, encephalocele, anencephalus. He maintained that the term "arrest of development" could be properly used only as signifying the result of disease, and that, as congenital deformities were not mere vagaries of the developmental process, it was no longer possible for anatomists to classify monsters as they would zoological specimens. The gross lesions in the conditions referred to above he believed to be due to inflammatory action, and, in proof of this position, exhibited to the society several dissected specimens.

Acephalobrachia.—J. B. Goodwin[186 May] describes a case of fœtal monstrosity in which the nates, sacral, lumbar, and dorsal regions were perfect, but which had neither arms nor head. It had mammæ as large as the mother's, but no nipples. The mother gave birth at the same time to a normally-formed child. Dunnavant,[74 May] of Osceola, Arkansas, gives a somewhat similar case. The monster was born at the same time as a normally-formed fœtus of 6 months. There was no indication of either head or right arm, and the left was represented merely by a short stump with four fingers. The lower extremities, though well formed, turned in at right angles. At the ordinary position of the sternum was an oval opening, about 2½ inches (6.2 centimetres) wide and 5 inches (12.5 centimetres) long, exposing the poorly-formed lungs and heart within.

Anencephalia; Acephalia.—Svenson[106 Dec.,'88] reported to the Nebraska Medical Society the birth of an anencephalic female child, well formed with the exception of the cranial vault and contents, which were wanting. The child made a few convulsive movements before the cord was severed, when it immediately died. Banham[2 Jan.12] showed to the Sheffield Medico-Chirurgical Society a specimen of this abnormality that was destitute of the whole cerebro-spinal canal and its contents. Another case is reported by Ashley Cummins[2 Jan.12] in which the occipital bone was wanting, and there was complete spina bifida, the posterior arches of all the vertebræ being absent. King[61 Mar.2] also gives an instance, and Mabbot[1 May 26] showed a specimen to the New York Academy of Medicine.

An interesting specimen of this monstrosity is described by J. Stuart Nairne.[86 Mar.] It consists of an undeveloped head and several irregularly-formed appendages. One, pendant from the posterior part of the head, looked like the membranes of the brain; another, from the lower portion of the head, resembled an adigital limb. On the right of the latter another small, fleshy one hangs, and from below the chin a fourth soft appendage arises containing the umbilical vessels. Upon dissection, he found nearly all the bones of the left side, but altogether misplaced and misshapen.

The right side had neither bones nor organs, and he accordingly designated this curious formation as a "hemicephalic sinistral adigital monster." Frothman[69, Feb. 7] mentions a case of an anencephalic monster that was also affected with pseudo-hermaphroditism. Other instances are reported by Long[2, Oct. 12] and by Reid,[213, Nov.] the monster described by the latter having lungs and heart, but not a trace of cephalic or of abdominal organs or arms.

Bucephalia.—Terbino, of Italy,[6, Oct. 5] reports a monster that has two distinct heads, two abdominal and two thoracic cavities. The extremities are normal.

Spina Bifida.—Snowball[285, May] reports a case of spina bifida in a child 3 years old. The mother had miscarried twice before the child was born. A small amount of fluid was withdrawn on two different occasions, and 10 minims (.62 centimetre) of iodo-glycerin were injected into the tumor. The child completely recovered. E. Bitot[188, Aug. 4] showed to the Society of Anatomy and Pathology of Bordeaux a boy affected with hydrocephalus and spina bifida. He also had six fingers on each hand.

Cyclopia.—C. Phisalix[277, Jan.] describes an infant in whom the nose was wanting, its place in the median line being occupied by a single eye, on the horizontal diameter of which, however, were two pupils separated by a narrow space. Upon examining the brain, the most noticeable thing was the absence of normally-constructed hemispheres.

Bicephalia.—An entirely different kind of double-headed monster is described by Boldt.[59, Feb. 16] It appeared to be rather a double-faced head without any body. These imperfectly-formed faces were on the inferior aspect of the mass, their crowns pointing in opposite directions. One face had neither mouth nor ears, but sulci indicative of eyes and nose, marked by a small projection. The other face had also sulci where eyes should be, a similar projection for a nose, and, in addition, a well-marked mouth. The mass was about the size of an ordinary child at birth, and was born with a well-formed child.

Anophthalmus.—Anderson[104, Apr. 20] describes an instance occurring in his practice. The child was well developed, with the exception of its head. From the mouth up the face was smooth and bare. The mouth was stretched open by a mass of a dark-brown color, over which was a delicate membrane. Under the membrane, imbedded in the mass, were two small eyes, ½ inch (12 millimetres) apart. From the upper lip hung a small pedicle, with a ball in the end. After birth the monster made a few struggles and died.

Cryptophthalmus.—Van Duyse[276 May] describes a case of this rare condition in which the protecting organs of the eyes were completely absent, the skin of the forehead passing directly in front of the orbits. The eyes were represented externally by projections, well marked in the left. Under the skin the globes could be seen moving, and perception of light existed.

Diprosopus Triophthalmus.—A specimen also of this deformity was exhibited by King[61 Mar.3] to the Medical Society of the District of Columbia. The appearance was rather that of four eyes than of three, though there was not complete cleavage of the head—only fission.

Meningocele.—A unique case of this abnormality is reported.[2 Apr.27] A supernumerary limb removed from a child's back was found to consist of a meningocele, with the limb projecting from it. Scapula, clavicle, and humerus were present, and to the free end of the last were attached several fingers. Though the arm was supplied with the usual nerve-trunks, no muscular tissue could be demonstrated.

Encephalocele.—Broca[48 Sept.] reports an interesting monstrosity in which a bridle of connective tissue extended from a large parieto-encephalocele to the amnion, and a second similar band connected the ectopic heart with the amnion. Cardiac pulsations persisted for several hours after birth, affording an opportunity for observing the heart's action.

The sternum, a portion of the skull, and the lower jaw were lacking. The fœtus was female, and the hymen could plainly be seen to develop from the vagina and not from the vulva.

Two cases are reported by Demme.[214 June 15] The one was a hernia naso-frontalis, the other a hernia occipito-parietalis.

Hydrocephalus.—Vergely[188 Dec.12] describes a case of a child born of syphilitic parents, but which showed no signs of this disease until it was 5 months old, when the head began to enlarge in a triangular form, until, at 9 months of age, the infant could no longer hold up its head. The trouble was cured by antisyphilitic treatment.

An interesting case of hydrocephalus is described by Heffner.[176 Mar.] At birth the child had spina bifida, with a fluctuating tumor the size of a hen's egg. In three weeks the contents of this tumor had exuded and the back was apparently healed, but at about the same time the head begun to enlarge regularly. When the child was 3 months old, 82 ounces (2424 grammes) of fluid were removed within a week by three tappings. It increased only the faster, and, at five months, when the infant died, its head measured 26½ inches (64.7 centimetres) in circumference and 22½ inches (57 centimetres) from eyebrows to occipital protuberance. Simpson$^{36}_{\text{Feb.}}$ showed a specimen to the Edinburgh Medical Society, and Shepherd$^{62}_{\text{May 4}}$ mentions a case in which, before he could deliver, he was compelled to perforate the cranium, 2½ gallons (11.3 litres) of serum escaping.

Another singular and interesting case is described by Leonard.$^{27}_{\text{Aug.}}$ The child, a female, was generally well developed. But in the occipital region was a large mass, covered by scalp, which gave the sensation of a placenta covered by membrane. At the time of delivery this mass was ruptured and water escaped. A finger passed through the ruptured membrane could easily be pushed to the foramen magnum, but when inserted into that opening the child stopped crying, breathed spasmodically, and became blue. At the autopsy the large mass outside the head was found to be the cerebellum, enormously developed. The cerebral hemispheres were very small, weighing, together, but 3 ounces (96 grammes). Marion$^{99}_{\text{Aug. 15}}$ relates an instance in which, sixty days after birth, the semi-gelatinous contents of a tumor on top of the child's head were evacuated. The child died immediately after the operation.

Macrocephalus.—Money$^{2}_{\text{Mar. 3}}$ showed to the London Medical Society a girl of 10, undergrown, but whose head measured 23½ inches (60 centimetres) in circumference and 16 inches (40 centimetres) over the vault. The fatty tissues of her body were hyperdeveloped, whilst she was deficient in muscular strength.

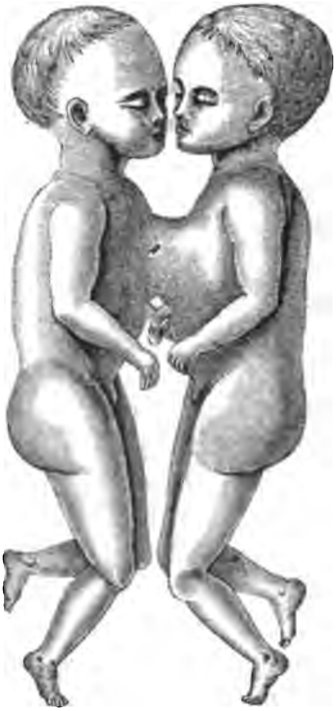
Microcephalus.—Two cases of this abnormality have been mentioned during the year, one by G. Anton,$^{8}_{\text{Jan. 21}}$ of a female child of 15 months, in whom there was marked disturbance of locomotion, and the other by E. Peiper.$^{20}_{\text{Feb.}}$

Double Monstrosities.—Bertram Windle$^{277}_{\text{Apr.}}$ contributes a careful paper on the origin of double monstrosities. After stating his belief that there is originally unity followed by fission, he discusses the probable cause. The fission, in his opinion, takes place probably at the very earliest stage of differentiation. As to the cause, various explanations have been given, such as overstimulation, faulty relation between embryo and zona pellucida, superabundance of formative material, entrance of two or more spermatozoa, faulty spermatozoa, or, finally, what the author is inclined to believe, a retention of the whole or a part of the second polar body. J. Labougle and P. C. Regnier[188, May 6] have also contributed a careful study of this subject.

Janiceps Asymmetros.—Caillé[51, Nov.] describes a specimen of this malformation. It is an asymmetrical syncephalus, having one head, four lower and four upper extremities. The thorax is double, as are the vertebræ from the pelvis up. The umbilicus is single.

Acephalobrachia.—A case is reported by J. Balin.[4, Mar.25]

Pseudencephalus.—Charon[288, Mar.10] describes a case in a full-term infant. A fissure in the head extended from the base of the nose to the occiput. From the right cerebral hemisphere proceeded a tumor the size of a small nut, and from the left a larger one about the size of a hen's egg. Another case is mentioned by Nicaise.[288, May 5] The pseudencephalic monster was one of twins, the other being quite normal. The anterior fontanelle was not to be found, and from the posterior, which was exceptionally large, emerged a tumor of considerable size.



DOUBLE FŒTUS.
(*British Medical Journal.*)

Acordiacus Acephalus.—C. Th. Eckardt[317, Aug.3] describes a specimen of this kind.

Sterno-thoracopagus.—In the case recorded by B. F. Lamb[61, Jan.30] there were two perfect heads and necks, and the arm and leg of one side of each, whilst on the other they had coalesced. There was but one umbilical cord.

N. H. Walter[2, Jan.23] describes a female monster, the result of eight months' gestation. It had two sets of perfect limbs, two spinal columns, backs, and shoulders. The anterior walls of the chest and upper part of the abdomen were joined together and a common umbilical cord arose from the junction of the two bodies. The head was natural, with the exception of two supernumerary ears in a shallow longitudinal sulcus at the back of the head. A double male fœtus, resembling the Siamese twins, is reported by Alexander Scott.[2, June 8] The bodies were united along the whole length of the sternum, down to within an inch (2.5 centimetres) of the umbilicus.

The case recorded by Tinley[2, Feb. 22] had two perfect heads, one body, three arms, two legs, each with talipes varus, and a caudal appendage 8 inches long, with a bulbous extremity. There were also two spinal columns, separated as far as the lumbar region, whilst the remainder was as in a perfectly-formed male child. The monster lived twenty-four days and died in convulsions. Another case is reported by Fernandez.[760, Nov. 9]

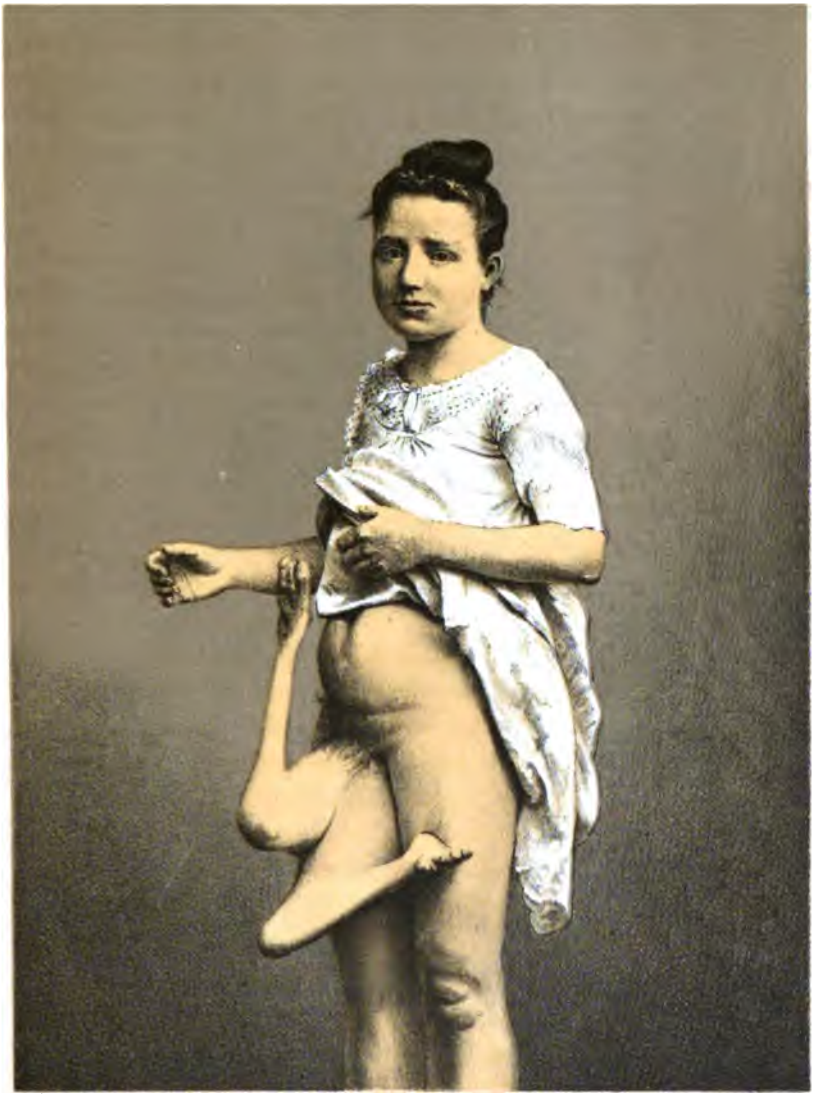
Abdominopagus.—G. M. Collins[59, Aug. 24] reports the birth of 2 female infants which were united in the centre of the body, having but one umbilicus; otherwise each was furnished with all the organs normally found.

Ischiopagus.—O. N. Heuff[115, Sept.] describes a monster of this character which consisted of two perfectly-formed female children, with the exception that they were united at the pelvis. He claims this to be the most perfect case recorded in the country. A month later they were still alive

J. C. Hoag[115, Sept.] describes another case in which the bodies were not united so symmetrically, while there was but one set of genital organs. In the case recorded by E. F. Walker,[9, July 6] the bodies, of unequal size, were joined simply at the buttocks. Another, somewhat similar, is mentioned.[61, Aug. 3]

Strzalko and Eliasberg[317, Aug. 24] describe a most unique monster. It is destitute of pelvis and sexual organs. The legs proceed from the ribs, the abdominal organs being located below the attachment of the lower extremities. The insertion of the umbilical cord could not be found.

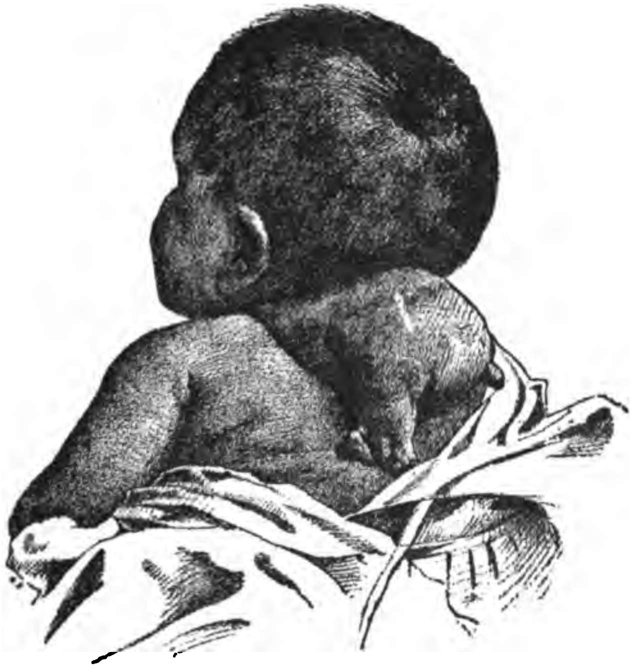
Robert Jones, of Liverpool,[187, Jan.] showed at the Liverpool Medical Institution a rare form of parasitic fœtus. The infant was born with a tumor at the back of its neck the size of a small cocoa-nut,



Dipygus Parasiticus (Bugnion).
Revue Médicale de la Suisse Romande.

and attached by a broad base in a line with the upper surfaces of both shoulder-blades. Pendant from the mass was an extension resembling a forearm, terminating in perfectly-formed fingers. Bones could be felt in the mass, which served to correspond to humerus and scapula.

But a far more interesting case of this abnormality is described by E. Bugnion.[197 Jan.] It is that of a well-developed young woman, born in 1869. In front of the pubes is attached a rudimentary pelvis, bearing two long, deformed, and partly-atrophied lower extremities. Rudimentary nipples are found in the skin of the autosite's groin on each side of the attachment of the pedicle of the parasite. There are no signs of any external genitals on the parasite. The vulvar orifice of the autosite is encroached upon anteriorly by the parasite and is pushed backward, so that the perinæum is reduced to a thin septum. Notwithstanding all this, the woman walks well, is married, and has given birth to two children. A reproduction of a photographic view of the case is shown herewith.



PARASITIC FŒTUS.
(*Liverpool Medico-Chirurgical Journal.*)

Cauda Hominis.—Etienne Raboud[82] reports a case of a very rare form of this rarely-found deformity. The subject, a boy of only 12, has a tail nearly a foot in length, the longest, so far, on record. This superfluous growth is soft and smooth, has no bony frame-work, and is cylindrical in shape.

Ectopia Abdominalis.—Charles D. Rae[6] describes a case occurring in a male child, born, apparently, at full term. An opening existed in the abdominal walls extending from the epigastrium to the left iliac fossæ, allowing the protrusion of the abdominal viscera. Another instance is reported by J. M. Barton,[760] in which there was a tumor at the umbilicus the size of an adult fist, and composed of omentum and intestines. The parts were successfully restored by an operation.

Amelus.—H. Gravely[2] describes a case of this deformity. The lower extremities were made apparent by nipple-like projections on each side, whilst there was not a trace of upper extremities. The child, otherwise well formed, lived a month. Cases much similar have been recorded by S. Cholmogoroff,[317] R. T. Caesar,[2] Walter B. Nisbet.[2]

Phocomelus.—Simpson[36] showed to the Edinburgh Obstetrical Society a specimen of phocomelus. All the extremities of the fœtus were more or less deformed, owing, probably, as some hold, to intra-uterine rickets.

Harvey Littlejohn[36] reports the result of an autopsy on a woman of 80 years, who had died of old age. All the abdominal and thoracic viscera were found transposed. W. W. Gannett[90] found the same condition at the autopsy on a man who died of cerebro-spinal meningitis. Another instance, found in a boy of 9 years old, is mentioned by Epstein.[84]

J. F. Knott[16] has collected reports of 34 cases of the rare abnormality of synotia. Like cyclopia, it is more common in females than in males. Out of 25 cases of synotia, both simple and complicated with cyclopia, 9 were males and 16 females.

HISTOLOGY AND TECHNOLOGY.

By FRANK W. BROWN, M.D.,
DETROIT.

Composition of the Cell-Nucleus.—Kossel[41, Apr. 25] gives the results of work on the chemical composition of the cell-nucleus, its changes and relations. The granules existing in the nucleus belong to the albuminoid group, though differing from others of that class in that they do not exist in a free state, but in combination with phosphoric acid. This combination, called nuclein, is easily broken up, even water gradually resolving it. The quantity of phosphoric acid thus combined in the various organs is considerable. It was formerly believed that the acid occurred in the form of phosphates. This may be so in muscle, blood, or bone, but not in the liver and other organs. Kossel has succeeded in estimating the amount of the acid in various organs, and states that in the liver 30 to 50 per cent., in the pancreas 50 per cent., and in the spleen 60 to 70 per cent. of the entire amount exists in combination with albumen. It appears to Kossel as if the amount of combined acid present were dependent upon the number of nuclei.

Nuclein is combined in the nucleus with a third chemical group. When broken up, a number of bases appear; these are adenin, guanin, hypoxanthin, and xanthin. Adenin and guanin resemble each other, adenin having the same formula as hydrocyanic acid. Both, when treated chemically, exchange a portion of their nitrogen for carbon dioxide and become hypoxanthin and xanthin. It has been the custom to estimate the amount of nitrogen in an organ by the amount of albumen present. Kossel shows this to be wrong, and in the thymus gland he found that more than 7 per cent. of the nitrogen existed in combination as adenin. He found that nuclein often exists in combination with other substances. In the nuclei of the red blood-corpuscles of the goose, turkey, etc., it was combined with a substance called "histon." Miescher found it combined in spermatozoa with "protamin." The fact that the amount of nuclein present in a tissue is dependent upon the number of nuclei makes its estimation of much importance in determining many pathological points. Kossel recognizes this, but is unable, as yet, to give more positive data.

F. Tangl^{400} comes to the conclusion that the sharp boundary between the nucleus and the cell-body disappears when the achromatic nuclear membrane is destroyed, and that it does not re-appear until a new membrane is formed around the daughter-figures. During mitosis there is a much closer connection between cell-body and nucleus than when the nuclei are at rest; this is probably due to the intermixture of the nuclear material with the interfilar mass. Particular attention is directed to the influence of preservative reagents on the character of the cell.

Falchi$^{204}_{\text{V.34,No.3}}$ studied with great care the karyokinesis of the cells of the retina, which he found to cease as soon as the rods begin to develop. The rods and cones develop later than any other layer. As to the development of the optic nerve, Falchi controverts Müller's opinion that the fibres of the optic nerve are derived from the ganglionic cells of the retina, as he proves the fibres to exist prior to these cells.

Function of Leucocytes.—James Dickinson$^{6}_{\text{Sept.21}}$ calls attention to the meagre study and incorrect conclusions as to the function of leucocytes and other indifferent cells, and brings forward many pertinent facts which are as yet unexplained. He emphasizes the ideas of Metschnikoff as to their phagocytic actions, and believes that they act principally as scavengers. If this be true, it would modify our interpretations of the phenomena of inflammation and other pathological processes.

Spermatogenesis.—D. Biondi$^{400}_{\text{June}}$ describes spermatogenesis in man. Before puberty the canals contain only one kind of cell, round in shape, lying in a single or double row on their walls, or sparsely and irregularly imbedded in a matrix toward the lumen. After maturity these cells are arranged in pillars in the three zones already distinguished by Biondi,—primitive cells, mother-cells, and, most centrally, daughter-cells. The spermatozoon is developed from the nucleus of the last, and the cell-substance forms imbedding *débris.* The next zone of cells also becomes transformed into spermatozoa, and the peripheral cells may form mother- and daughter-cells. The daughter-cells in their development into spermatozoa exhibit five stages: (1) movement of the nucleus to the peripheral pole; (2) formation of the middle portion; (3) formation of the head; (4) formation of the tail; and (5) liberation. The spermatozoa are expelled, along with the basal cell, by the expansion of the neighboring cells. The epithelial cells of Sertoli, the supporting cells of Merkel and the spermatoblasts of von Ebner are artificial products, resulting from the collection of spermatozoa, protoplasmic *débris*, and basal cells.

Fat-Cells of the Frog.—In a paper on the origin and development of the fat-cells of the frog, W. C. Borden[440 Ap.] comes to the following conclusions: (1) that, in the frog, the fat-cell is derived from a special plasma-cell by a peculiar method of development; (2) that, as the mode of development of the fat-cell of the frog differs from that described for certain other animals, the process of development of the fat-cell is not the same in all animals; (3) that the development of the fat-cell of the frog from a special plasma-cell, and the aggregation of these cells in a particular locality (organs, corpora adiposa) for a special function (making, storing, and supplying fat), shows that the fat-cell of this animal is a fully differentiated one, having nothing in common, either in origin or function, with connective tissue.

Blood.—W. Reinecke[20 Oc.] gives the results of his studies of the number of red and white corpuscles in the blood. He holds that the widely-different results hitherto obtained arose through the fact that the observations were not confined to one individual. Confining his studies to his own person, carefully testing his habits and general condition, he estimates that in 1 cubic millimetre of blood the number of red corpuscles average for twenty-four hours 5,209,667; the number of leucocytes, 7134, giving an average proportion of 1 to 731. He asserts that, although the number of leucocytes vary during the twenty-four hours, the variation does not depend upon the time of day nor, as has been maintained, upon the stages of digestion.

Cartilage. — Eklund, corresponding editor, describes the chemical researches in the tracheal cartilages made by Carl Th. Mörner. From a histological stand-point, Mörner distinguishes in the tracheal cartilage of the ox (1) a net-work of trabeculæ, not containing cartilage cells and continuous with the perichondrium, and (2) nodules, containing cartilage-cells and occupying cavities in the trabecular net-work. In place of the classic substance, chondrogen, he finds cartilage to consist of the following fundamental substances:—

1. Chondro-mucoid, resembling mucin. 2. Chondroitic acid, a white, very acid powder, forming insoluble salts with probably all metals. This acid has the singular property of preventing, by its presence, the precipitation of chondro-mucin by acids or salts. 3. An albuminoid found in the trabecular net-work. 4. The ordinary substance, collagen, existing, probably, simultaneously in the net-work and nodules. The methods employed for isolating the above-mentioned substances have been described by Mörner.$^{508}_{\text{B.1,p.1}}$

Elastic Fibres.—Galen$^{6}_{\text{Oct.1}}$ has made some experiments on elastic fibres which have led him to the conclusion that the elastic tissue can be saturated by a foreign substance circulating in the blood and tissues. This occurs not only when the whole system is saturated with the substance and the organs of excretion are inactive, but also when such saturation does not take place and the kidneys are acting normally. These experiments, as well as those of Blashks, throw a new light on the physiological importance of the elastic tissue, and suggest that it serves as a kind of depot for the storage of septic and foreign substances, especially when their free excretion—by the kidneys, for instance—is in any way disturbed.

Straub,$^{204}_{\text{v.34,H.3}}$ by hardening vitreous bodies of the eye in Müller's fluid, has rediscovered the fasciculi noted by Brücke and Hannover forty years ago. He also certifies to the existence of a limiting hyaloid membrane, which is attached to the retina (1) around the optic nerve, and more firmly (2) at the ora serrata. The membranes, 8 to 10 in number, which compose the vitreous, divide and expand from the ora serrata into finer ones, which anastomose and enmesh the mass of the vitreous in its spaces. No endothelium could be discovered in these membranes.

His$^{214}_{\text{Oct.1}}$ denies the existence of the net-work, described by Gerlach, in connection with the cells of the central nervous system. He believes that the branched processes of the different cells may grow toward each other without, however, anastomosing. He also states that the fibres of the posterior nerve-roots do not arise in the cord, but in the ganglia. Each cell in the ganglia has two processes, one of which is connected with a peripheral nerve-fibre, whilst the other penetrates the cord.

Ssudakewitsch,$^{20}_{\text{Feb.}}$ in studying the destruction of elastic tissue in certain skin diseases (pascha-chardu and lupus), noticed the presence of large numbers of giant-cells containing fragments of elastic tissue. He considers this a proof of the phagocytic powers of the cells, but was in doubt as to whether the fibres degenerate in consequence of the action of the cells, or whether the latter were simply removing tissue that had become necrotic.

Brain.—C. L. Herrick,$^{61}_{\text{Oct.12}}$ working with W. G. Tight on the brains of rodents and lower mammals, gives the results of his efforts to distinguish, microscopically, the motor from the sensory areas. He summarizes as follows: Over the entire recognized motor area, and along the limbic lobe, a well-defined type of structure can be observed, while the remainder of the cortex contains an entirely different set of cells. The outer neuroglia layer is followed by a zone of small pyramidal cells, with a strong axial process derived from the superficial layer and fine anastomosing fibrils from the lower and blunt extremity. Below this is an indistinct layer of fusiform cells, which connect below with the "giant-," or ganglion-cells, which are not only more than twice as large as the other members of the series, but are nested, or clustered, and have other distinguishing peculiarities. The axial process is strong, and may be traced upward for a considerable distance. The numerous inferior processes of these giant-cells connect with multipolar, parametric, or irregular cells lying upon or imbedded in the white-fibre zone.

Within the sensory area we find an entirely different type of cell arrangement. The cells of the upper zone, lying next the neuroglia layer, are nearly of the same size as those of the corresponding zone of motor areas, but are more nearly globular, possess a large nucleus, and, in particular, *receive their axillary process from below.* Cells of this sort occupy the entire thickness of the cortex to the depth of the giant-cells, increasing in size from above downward. Corresponding to the giant-cells of motor areas are large pyramidal cells, each with a slender, downward projection, terminating in an axillary process, while the *upper* blunt extremity gives off a number of fine fibrils.

Lymph-Follicles in the Intestines.—Stöhr$^{29}_{\text{B.33,H.3}}$ gives the results of his studies of these follicles. The epithelial covering of the follicles is not of the same character as that found on the villi, for not only does it contain large numbers of round nuclei, sometimes in such quantities as to obscure the epithelium, but the cells are not constant in form, some being cylindrical, whilst others are star-shaped, with processes anastomosing with neighboring cells. Occasionally, the basement membrane is absent and the processes connect directly with the net-work formed by the branched cells of the tunica propria. In the meshes of this net-work are found a large number of round cells, with oval or round nuclei. Often the protoplasm of these cells exists only as a thin envelope, and, not rarely, the nuclei are free.

In order to clear up this picture, Stöhr made numerous studies of the development of the follicles. The time of their first appearance is exceedingly variable, some embryos showing well-developed examples, whilst newborn or even older ones of the same species exhibited but rudimentary forms. The earliest stage of the development of a Peyer's patch was observed in a newborn cat. Here was seen an ill-defined mass of round cells which extended along the base of the glands into the upper layers of the submucosa. From this point processes resembling villi were sent out, which were distinguishable from them by the character of the epithelial covering. A somewhat more advanced stage, from a guinea-pig 2½ days old, is shown by Stöhr. The difference between the follicle and villus is much more marked. There can be no doubt as to the origin of these cell-masses in the tunica propria.

Patzelt$^{797}_{B.86,H.4,'82}$ has shown that the point of development of the gland-wall or villus epithelium is found at the base of the glands, and here "mitosen" are often met with in the epithelium, but never at other points in the villi. After five days the follicle is seen to be well defined and surrounded by a limiting connective-tissue envelope. Numerous "mitosen" within the follicle point to the development of leucocytes. In this picture, as in those of the earlier stages, few leucocytes are found in the epithelium, and when seen among them give the impression that they are passing between rather than into them. The epithelium cannot therefore be considered as being derived from the leucocytes. The further development of the follicles from a 6 weeks' cat is brought about through the division of the round cells (leucocytes) found in the tunica propria and the neighboring districts of the submucosa, and their growth is completed by the bodies in the submucosa. It cannot be denied that during life follicles are continually being destroyed and formed, their number and size depending on the state of nutrition.

Stöhr prefers mature animals for the reason that in the young the migrations are so numerous as to obscure the epithelium. Not infrequently bright " streets " were seen in the epithelium, giving the impression of a yet unclosed track through which a leucocyte had made its way. In the guinea-pig leucocytes were found as if in the interior of the epithelial cells; sometimes ten to twelve would be bunched within a single cell, pushing aside its nucleus when present, which was not always the case. These conditions only obtained when the migrations were exceedingly frequent. It is doubtful if the leucocytes ever increase within the cells by subdivision, for their nuclei are always clear. The polygonal contour of the cell-bodies was apparently caused by compression. The fate of the cell containing leucocytes is easily determined: it becomes more and more distended, and loosens itself from the tunica propria; the thinned walls burst and the contents mix with those from neighboring cells, or fill the unclosed tracks already mentioned. In this manner rows of cells broken, and thus communicating with each other, form cavities running parallel with the epithelial surface and separated from the lumen by the membrane composed of the epithelial caps. This eventually bursts, liberating the leucocytes. Even before this liberation the portions of the epithelial cells containing the nuclei begin to grow, and eventually restore the substance lost. The period of rest of the cell is brief; indeed, not seldom is it seen that, even before the rupture of the leucocyte-containing cavity, fresh leucocytes are beginning to invade the lower parts of the cells. Stöhr did not fully succeed in proving the above-described process in other animals than the guinea-pig, excepting in the cat, where a certain resemblance was seen. It is probable that the migrations in dogs, cats, etc., is a simple one, not involving the epithelium. But it is not rare to find in such animals the whole epithelial covering of a follicle absent and the space filled with leucocytes. This has been attributed by Heidenhain$^{246}_{I.43}$ to artificial causes, to which Stöhr gives a qualified assent.

TECHNOLOGY.

Staining.—Gibbes[440 Apr.] gives this formula for a most excellent logwood stain: Take 1 pound (453 grammes) of tawny-colored medium-sized logwood chips, and mix with 50 ounces (1480 cubic centimetres) of distilled water in a porcelain vessel, and heat slowly to boiling-point. Boil for ten minutes, and, while boiling, stir in very slowly a sufficient quantity of potash-alum to give a black color. The amount added varies with the quantity of the chips from ½ to 1 ounce (15.5 to 31 grammes). Boil for ten minutes, and set aside for twenty-four hours. Filter, and add 4 ounces (118 cubic centimetres) of alcohol. This preparation gives a beautiful stain, is inexpensive, easily made, ready for use at once, and does not precipitate.

G. Platner[401 B.6] gives the following new method for showing the neuro-keratin frame-work of nerve-fibres: After freeing the fibre from fat, etc., it is placed in a weak solution (1 to 4 of water or spirit) of ferric chloride, which must contain an excess of free acid. After several days, or even months, it may be removed and thoroughly washed in alcohol or water. It may then be stained in a saturated alcoholic solution of dinitroresorcin, which combines with the iron to give a greenish color. It may remain in the stain for several weeks.

Eugen Burchard[20 Aug.] proposes a method for differentiating amyloid areas in microscopical sections. The specimen is stained in the ordinary anilin-water-gentian-violet solution of moderate strength. After being fully colored, which takes a number of minutes, it is placed in a weak solution of hydrochloric acid (circa, 1 drop to 10 grammes—2½ drachms—of water), and left until the normal portions have become completely decolorized, which takes about ten minutes. The amyloid portion holds the stain well. Clear up and mount in liquor potass. acet. Instead of the anilin-water solution, a simple aqueous solution of gentian violet may be used with fair results.

Ira Van Gieson[1 July 20] gives this method for staining sections of the peripheral nerves and central nervous system: After hardening in Müller's fluid and alcohol, they are stained rather deeply with hæmatoxylin to color the nuclei, and then placed for five minutes in a solution prepared by adding a few drops of a saturated aqueous solution of Grübler's acid fuchsin to 100 cubic centimetres

(3.3 fluidounces) of a saturated aqueous solution of picric acid, until a dark-garnet color is obtained. Wash quickly in water and in two volumes of alcohol; clear in oil of origanum and mount in balsam. The ganglion-cells, neuroglia, blood-vessels, and sclerotic areas take the garnet color, whilst the axis-cylinders are stained red and the myelin yellow.

Minor$^{7}_{\text{Apr.5}}$ speaks highly of the use of alkanet and chlorophyll for coloring fat in lesions of the nervous system. He prepares the alkanet stain from an ointment sold in Russia and Germany under the name of "alkannine," of which he dissolves ½ to 1 gramme (7½ to 15 grains) in 50 to 75 cubic centimetres (1¾ to 2½ fluidounces) of absolute alcohol, and filters. The stain acts quickly (one-half to one minute). The specimens are washed in water and mounted in glycerin. The chlorophyll stain is made in the same manner as that of the alkanet, from an ointment used in Russia for giving an olive-oil color to mineral oils. It acts more slowly (five to fifteen minutes). The chlorophyll gives the fat a bright-green color, which, although not permanent, is more durable and clearer than the color given by osmic acid. Achard adds that he considers the alkanet stain to be the simplest reagent for testing myeline for fat.

The method of His,$^{100}_{\text{July}}$ modified by Ranvier, is an excellent one for the isolation, staining, and mounting of corneal cells. The method is this: Place a small piece of the fresh (unmanipulated) cornea in a mixture of equal parts of sulphuric acid and distilled water, and allow it to remain for a few minutes until the basal substance softens. Pour off the mixture and replace with distilled water. Lift the specimen to a slip and put on a cover-glass, which is to be pressed to place with a slight to-and-fro motion. This suffices to loosen and separate numbers of individual cells or of lamellæ of them, which can be examined *in situ.* A drop of a solution of fuchsin may be added, which gives a permanent stain to the cells and clearly demonstrates all the details. Mount permanently in glycerin. The stellate cells, anastomosed by prolongation of the processes, are finely shown, though the nuclei are not seen. The now well known image-crests (*crêtes d'empreinte*) are well shown.

G. C. Freeborn$^{280}_{\text{v.9,p.222}}$ recommends nigrosin for staining connective tissues. The solution used is made by mixing 5 cubic centimetres (1½ drachms) of a 1-per-cent. aqueous solution of nigrosin with 45 cubic centimetres (1½ ounces) of an aqueous solution of picric acid. This makes a dark, olive-green fluid. Sections are placed in this solution for three to five minutes, and then washed in water until their color changes from a yellowish green to a deep blue. Dehydrate, clear in clove-oil, and mount in balsam.

After dehydration the sections may be double-stained for five or six minutes in a mixture of 1 cubic centimetre (16 minims) of a saturated alcoholic solution of eosin and 49 cubic centimetres (1 ounce 5 drachms) of 97-per-cent. spirit.

Sections by the first method show the connective-tissue fibres stained bright blue, nuclei blackish, all other elements greenish yellow. By the second method the yellow color is replaced by red.

S. Krysinski,[20 July] speaks highly of copper-carmine stain, which is prepared by adding to a boiling 5- to 10-per-cent. aqueous solution of cupric sulphate sufficient carmine-powder to saturate. The result is a clear, dark-cherry-colored liquid which, in thin layers, shows a yellowish-red, eosin-like tinge. Sections are quickly (1 to 5 seconds) stained a yellowish-red color, which, when washed in hard water, changes to a gradually-deepening violet. Mount in balsam. The advantages claimed for this stain are that it is cheap, quickly prepared, does not spoil, is permanent, and differentiates well.

Nuclei are given an intense red color when stained with Orth's lithium carmine. Krysinski prepares this stain by adding to a boiling 1-per-cent. solution of lithium carbonate sufficient carmine-powder to saturate. Sections, after remaining in the stain for from one to twenty-four hours, are washed in water, and then placed in either a dilute solution of hydrochloric acid or a concentrated one of picric acid for a few seconds. Wash again, dehydrate, and mount.

Henry S. Upson[242 Jan.] states that it might be interesting to note, in connection with the mechanical theory of mordants, how much of the color in tissue-staining is due to mordanting or coloring matter deposited in spaces left by nature or by unequal contraction in hardening. Undoubted examples of space-staining are seen in demonstration of endothelial cells and of Ranvier's crosses by means of nitrate of silver, and of the corneal cells by chloride of gold. All of the myeline-sheath stains, except, perhaps, Weigert's acid-fuchsin stain, are open to this interpretation.

H. Griesbach$^{34}_{\text{Oct.}28}$ believes that he who carefully studies microscopical stains will be convinced that they work rather through chemical than mechanical methods, and that these chemical actions are often of value from a diagnostic stand-point.

E. Tschokke$^{401}_{\text{V.4}}$; $^{400}_{\text{Feb.}}$ gives the results of his examination of the following six pigments, which he has used for staining animal and vegetable tissues: 1. Benzopurpurin B, an amorphous brown powder, soluble in water, and giving a cinnabar-red solution and stain. It acts much like acid fuchsin, and is much superior to eosin, not being acted upon by alcohol, anilin-oil, oil of cloves, etc. It makes a good contrast-stain to hæmatoxylin, and can be used after Gram's method. 2. Benzopurpurin 4 B, an orange-red dye, soluble in spirit. The sections should be transferred from spirit to the alcoholic solution of the dye. It stains connective tissue orange. It is little altered by acids or alkalies. It may be used sometimes as a double-stain with logwood. 3. Dellapurpurin, a brownish-red powder, easily soluble in water. Preparations are stained, in two minutes, a diffuse purple-red. The dye is very stable and not easily extracted. Like the preceding trio, it may be used as a contrast-stain to logwood. 4. Benzoazurin, a brown powder, easily soluble in water, the solution having a blue-violet color. Strong solutions stain rapidly, and the nuclei are darker than the protoplasm. Alkaline solutions change the blue hue to red, and eventually decolorize the section. Acids, alcohol, and clarifying media do not at all affect the dye. It appears to be a good substitute for hæmatoxylin. 5. Chrysophenin, a sulphur-yellow pigment, but little soluble in water, easily so in alcohol. Preparations stained in an alcoholic solution assume a diffuse yellow color. It is unaffected by acids and alkalies. 6. Rhodanin red and rhodanin violet, both basic dyes, soluble in water and spirit. The stains imparted by their solution are carmine red and reddish violet. The pigment is rapidly extracted both by spirit and water. They stain bacteria, but no mordant has been found to fix them.

It will be seen that two (benzopurpurin B and benzoazurin) are very suitable for histological purposes.

Von Sehlen$^{50}_{\text{B.4,Nos.22,23}}$ recommends a mixture of equal parts of white of egg and a cold, saturated solution of boracic acid, filtered, for fixing samples of fluid or other non-viscous matter to the cover-glass. The solution is dropped on the cover-glass, and some of the material is intimately mixed with it. An even layer is then made in the usual manner, and the cover-glass dried in the air and fixed in the flames.

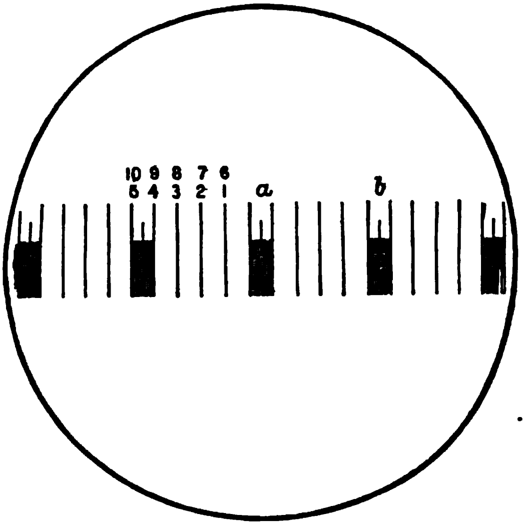
Bernhard Solger[401] recommends a cold saturated solution of ammonium carbonate as a macerating medium for thin snips of muscle when it is desired to demonstrate the sarcolemma. The specimens are allowed to soak in the solution for from three to five minutes. They are then transferred to a slip and further teased out. Examine in the same fluid. When carefully done, the sarcolemma is oftentimes completely separated from the fibre.

To remove air-bubbles when included in a Farrant medium-mount, C. M. Vorce[260 July] recommends that the slide be placed in a glass vessel, in which it can lie flat and be covered with distilled water. After standing a few minutes, place the vessel on a sand-bath, when the bubbles will soon emerge from under the cover.

Ewell[440 Feb.] prefers metal micrometers to those ruled on glass. They do not need correction for expansion. They are not so fragile, and, not needing covers, they do not sweat. The disadvantage is that they cannot be employed with transmitted light; yet this difficulty is not insurmountable. With the opaque illuminating objectives of Bausch and Lomb the writer has succeeded in employing a power of 400 diameters with success. Many micrometers are ruined by too frequently and assiduously cleaning them. A little dust on them is a real convenience as facilitating the finding and focusing of the lines. If the dust become too thick it should be removed with a dry camels'-hair pencil.

R. H. Ward[440 Apr.] describes an eye-piece micrometer devised by Rogers. The whole scale (see figure) is divided to $\frac{1}{125}$ inch (0.2 millimetre), leaving the field nearly unobstructed and free from the confusing effects of crowded lines; and these wide divisions may be used (taking advantage of the middle lines in the subdivided spaces as a means of reading halves) with low powers where close work is not required. But every fifth space is subdivided into ten, or $\frac{1}{1250}$ inch (0.02 millimetre), and, by using these subdivisions for decimals, or these for units, and the broad spaces for tens, one may gain the precision of the finer scale with almost the facility of the coarser. With a $\frac{1}{10}$-inch objective the coarse spaces may be made, with a moderate use of the draw-tube, to cover $\frac{1}{10000}$ inch (0.002 millimetre), and to read, with the assistance of one of the fine bands for tenths, $\frac{1}{100000}$ inch (0.0002 millimetre). A slight change of tube-length will give, with equal facility, a reading by $\frac{1}{4}$ of a micron (μ), or even $\frac{1}{5}$ μ, for easier relations to decimal notation. Thus, an average human blood-disk may reach from the line marked "2" in the cut to about the ninth line in the fine band "*a*," giving two tens and nine units (29) by direct reading in $\frac{1}{100000}$ inch (0.0002 millimetre).

Likewise, a disk of dog's blood may reach from line "2" to the seventh line of "*a*"; of beef's blood, from "2" to the third line of "*a*"; or, of sheep's blood, from "1" to the ninth line of "*a*"; reading, respectively, $\frac{27}{100000}$, $\frac{23}{100000}$, and $\frac{19}{100000}$ inch. Thus it would be easy to distinguish between all these except the first two, and possible in that case if we were certain as to the true averages, and sure, which is more than doubtful, that the averages themselves may not vary enough to obliterate the narrow margin between them. Any one who can subdivide the smallest spaces to tenths with the eye can, of course, read in $\frac{1}{1000000}$ inch or in fortieths μ; but few persons are likely to go, to any advantage, beyond the record of the finest lines. The above is intended to show what can be done by a skillful person with good but com-

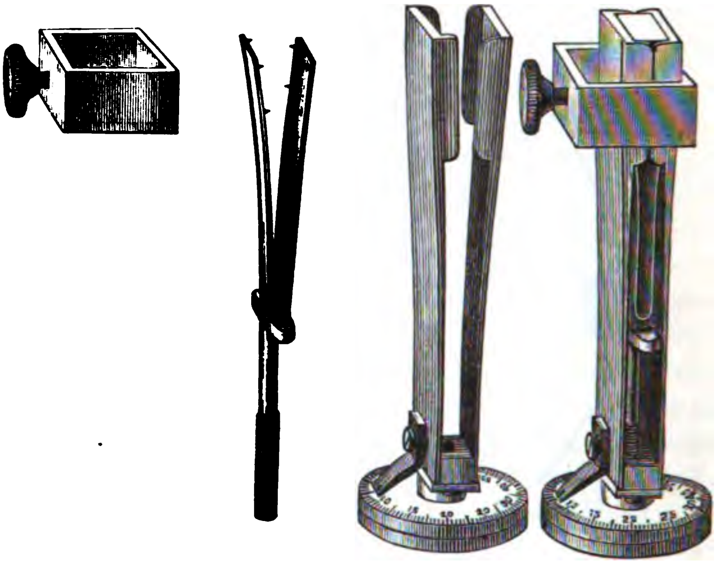


EYE-PIECE MICROMETER.
(*The Microscope.*)

monplace apparatus. It is only necessary to have a high-power ocular to carry the micrometer, and a plain microscope with good fine-adjustment and draw-tube. A mechanical stage for adjusting the object will be of great assistance.

E. Braatz[71, July] describes a simple hand-microtome which (as can be seen in the accompanying cut) is very easily cleaned, and thus admirably suited for bacteriological work. It also has the merits of being cheap and compact.

T. Law Webb[28, Sept.] finds that, by taking an aqueous solution of carbolic acid (about 1 in 40), and dissolving therein sufficient dextrine to make a thick syrup, a medium is obtained which is superior to the time-honored gum and sugar for imbedding specimens which are to be frozen and sectioned. It freezes so as to give a fine support without being too hard; it keeps better than gum and is cheaper. In making the solution it is well to heat the water, as dextrine dissolves so slowly in cold water.



BRAATZ'S HAND-MICROTOME.

Eklund, of Stockholm, Sweden, corresponding editor, gives the views of Gustav Retzius on the best methods of preserving and hardening brains. For microscopic purposes and for macroscopic demonstrations he prefers the bichromate-of-potash solution. Brains hardened in solutions of zinc chloride or nitric acid are well preserved in form, especially if they receive an after-treatment in glycerin, but the preservation does not hold long. For fragile brains the injection with Fleming's solution is excellent.

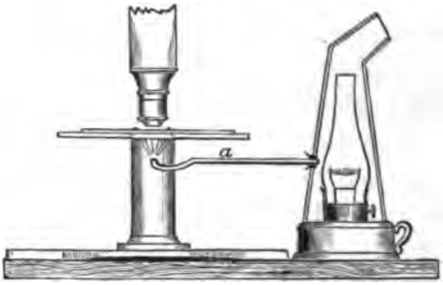
H. Jackson,[400 Feb.] of the chemical laboratory of King's College, recommends the use of monobromide of naphthaline not only as a solvent for balsam in mounting, but more particularly as a medium for immersion objectives. The refractive index is too high to use it alone, but diluted with castor-oil it gives excellent results. The relation of its dispersive power to the refractive index shows it to be, both theoretically and practically, superior to cedar-oil. The smell of it, after remaining on the fingers for a little time, is unpleasant.

S. Czapski[401 V.5; 400 Feb.] gives the following method for ascertaining the thickness of cover-glasses where the preparation is already mounted. The procedure presupposes the possession of some cover-glasses of known thickness, and that the head of the fine-adjustment screw is divided by radial lines.

The upper and under surfaces are focused with an objective of 0.6 to 0.9 aperature and central illumination, and the amount of turn given to the fine-adjustment screw noted for each cover-glass; of course, it is unimportant whether the exact value of the screw-turn is known or not. If the surfaces of the cover-glass do not present any obvious marks to focus on, an artificial one, such as dust or scratches, must be applied. If the numbers thus obtained be compared with the known real thickness of the covers, a reduction factor is obtained from their quotients, which is available for measurements of other cover-glasses with the same objective, ocular, diaphragm, and tube-length. The focusing differences are always to be multiplied with this factor in order to obtain the true depth (thickness) of the layer.

As an example: Objective D D Zeiss, diaphragm 8 millimetres diameter, tube-length 155 millimetres (6 inches), and four cover-glasses, the thickness of which, already ascertained, are 0.146, 0.168, 0.187, 0.22. The focusing differences marked by the head of the fine-adjustment screw were 35, 40, 45, 52 divisions. Then the reduction factors in $\frac{1}{1000}\,\mu$ are $\frac{146}{35}=4.17$, $\frac{168}{40}=4.20$, $\frac{187}{45}=4.16$, $\frac{220}{52}=4.23$, or, on the average, 4.19 (say 4.2). If the thickness of these cover-glasses had not been known, but the focusing differences had been obtained and multiplied by 4.2, the results would have been 0.147, 0.168, 0.189, 0.218, instead of 0.146, 0.168, 0.187, 0.22, differences of +0.001, 0.0, +0.002, +0.002,—a result more than sufficiently accurate for the purpose.

An excellent contrivance, the Kochs-Wotz lamp,[109/Jan.] was exhibited at the German Naturalists' Congress at Cologne. It consists of a glass tube thrust into a tin case large enough to go over the chimney of the lamp. The top of the case should be bent so as to prevent the escape of light, and the tube should be curved at the end, as is shown in the figure. The light is steady, uniform, and cool, and possesses other obvious advantages.



KOCHS-WOTZ LAMP.
(*St. Louis Medical and Surgical Journal.*)

Sections of bone and other hard tissues, when mounted in balsam, present oftentimes a total absence of structure, as the mountant has run in and become absorbed, to the obliteration of histological details. To avoid this, T. Charters White[2/Sept. 28] recommends that the sections be first placed in distilled water, which sinks into the structure, filling up all cellular or tubular cavities. This accomplished, the surfaces are to be dried by passing the finger over them, and the section then mounted in thick balsam.

PHYSIOLOGY.

By W. H. HOWELL, Ph.D., A.B.,
ANN ARBOR.

BLOOD.

In spite of the fact that the blood-plates or plaques have been observed in the blood-vessels by several physiologists, and that they can be obtained so readily in freshly-drawn blood when fixed with osmic acid, a number of observers persist in denying their existence as a normal element of the blood. They explain what has been taken for blood-plates as products of a disintegration of the white corpuscles or as a precipitate from the blood-plasma. Laker$^{20}_{\text{Ap.1}}$ reports a number of experiments made upon the veins of the bat's wing in the living animal, which, taken with the other proofs we have, ought to be conclusive as to the presence of these bodies in the normal blood. In the bat's wing the pulsatile vein gives to the blood a rhythmic flow, so that, even when the circulation is entirely uninjured, there is a slow current between the beats. At these moments the elements of the blood may be observed, even with high powers. Laker used apochromatic lenses, and saw the plates distinctly and without difficulty. They could be seen amongst the red and white corpuscles, being more numerous than the latter and less numerous than the former. Like the white corpuscles they showed a tendency, in the veins, to move in the peripheral inert layer, indicating that their specific gravity is less than that of the red corpuscles. From observations made upon the vessels in the mesentery of the rat he is inclined to believe that they are biconcave, like the red corpuscles.

The alkalinity of the blood under normal and pathological conditions has been the subject of at least two communications during the year. To determine the alkalinity of the blood, a simple method has been proposed by Landois, which requires only a small amount of blood, such as can be obtained from the finger by pricking. Making use of this method, Peiper$^{20}_{\text{v.116, p.337}}$ has investigated the alkalinity of the blood under various conditions. The following general results were obtained: The alkalinity of human blood varies within certain narrow limits; in children it is less than in adults and in women less than in men. During digestion the alkalinity is increased. Violent vomiting leads also to a striking increase. Muscular activity, strychnine convulsions, etc., are followed by a diminution in the alkalinity of the blood, apparently in consequence of the acid formed during contraction. Of the pathological conditions examined, a decided diminution of alkalinity was observed in leukæmia, diabetes, arthritis deformans, rheumatism of the joints, and in strong anæmia, while an increase was found in chlorosis. Fevers, however produced, were invariably accompanied by a decrease in the alkalinity, the decrease being proportional to the height of the fever rather than to its duration. Carcinomatous cachexia, liver diseases, disturbances of nutrition, and chloroform narcosis are attended also by a diminution in alkalinity. When Peiper's paper was read before the Greifswald Society some very interesting comments were made upon it by Loeffler.$\frac{89}{\text{Apr. 4}}$ He stated that white rats fed upon a flesh diet are immuned to inoculation anthrax, while others fed upon a vegetable diet are very sensitive to the infection. He suggests that the flesh diet may lead to an increased alkalinity of the blood and thus account for the immunity. So, the lower alkalinity of the blood in children may explain their greater susceptibility to infectious diseases. Jeffries,$\frac{89}{\text{May 28}}$ in connection with Putnam, has made a number of similar observations, the object of which was to determine the diurnal variations, if any, which occur. The method used is in some respects new. A drop of blood drawn from the finger was mixed at once with a standard solution of tartaric acid, and the reaction of the mixture was tested immediately by means of litmus-paper. The table of observations at different hours of the day shows that there was a steady increase in the alkalinity up to the dinner-hour at 6 P.M., after which, in the 2 cases recorded, there was a fall. Peiper and others have found that after dinner there is a rise in alkalinity; but they took their dinner in the middle of the day, at which time, according to Jeffries, there is a rise in alkalinity independent of any action of the digestive organs, though he found that luncheon tended to repress this increase. Quinine and antifebrin both caused a decrease in alkalinity.

Fick $^{246}_{v.45,p.293}$ contributes a suggestive note upon the manner of action of the coagulating ferments, fibrin and casein ferment, or rennin, his observations referring particularly to the latter. The usual theory of ferment action is based upon our knowledge of the action of the digestive ferments. Our knowledge of the mode of action is extremely limited, but it is generally assumed that, although the ferment is not used up in the chemical changes which it produces, nevertheless it takes an active part in these changes, and, as Fick puts it, each molecule of the substance acted upon by the ferment must come in contact with a ferment-molecule at least once. But the coagulation ferments, unlike the digestive ferments, produce their effect in a very short time. In some cases the time required for the coagulation is altogether too brief to suppose that the ferment has had a chance to diffuse throughout the liquid. For example, if a few drops of a glycerin-extract of casein ferment are placed at the bottom of a test-tube, and a layer of milk is carefully poured upon this, so as to fill the rest of the tube but not to mix with the glycerin, the milk will coagulate throughout in less than one minute if the temperature has been kept at 40 ° C. (104 ° F.). Fick thinks that the action of the coagulation ferments must be essentially different from that of the digestive ferments. In the case of the former, it is probable that the changes initiated by the action of the ferment, in the milk or the blood, are propagated rapidly from molecule to molecule of the coagulable body without the need of any further action of the ferment. While these observations do not explain the process of coagulation, nor constitute any essentially new facts, they emphasize a difference in the action of the body-ferments which has heretofore been more or less unnoticed.

Hoppe-Seyler $^{83}_{v.13,p.477}$ believes that the hæmoglobin of the red corpuscles is not mixed with or packed away in the interstices of the protoplasm of the corpuscles, as is usually taught, but thinks that the hæmoglobin replaces the protoplasm of the stroma. He calls attention, also, to a point which he has written about before, namely, that the oxyhæmoglobin and hæmoglobin obtained from the blood are not identical with the coloring matter as it exists in the blood, but are derivatives of this coloring matter. For instance, the coloring matter of the red corpuscle is insoluble in blood-plasma, does not crystallize, gives off its oxygen easily in the vacuum of the air-pump, destroys quickly hydrogen peroxide with the evolution of neutral oxygen, but without itself undergoing any change, and is not readily affected by the action of dilute aqueous solutions of potassium ferricyanide. On the other hand, oxyhæmoglobin is soluble in plasma, crystallizes more or less easily, breaks up hydrogen peroxide with more difficulty, and is itself destroyed by oxidation in the process; is changed readily to methæmoglobin by the action of solutions of potassium ferricyanide, and in the vacuum of the air-pump gives off its oxygen with difficulty and not completely. He thinks it probable that the coloring matter in the corpuscle is a compound of hæmoglobin with lecithin. This compound is broken up by ether, chloroform, alcohol, solutions of bile salts, and so on; in other words, by reagents which make the blood laky. For the coloring matter as found in arterial blood he suggests the name "arterin," to distinguish it from oxyhæmoglobin, and for the coloring matter of venous blood the name "phlebin," to distinguish it from hæmoglobin. A number of very interesting experiments on carbon-monoxide hæmoglobin are given in the same paper. The conclusions drawn from these experiments by the author are, that in crystallized carbon-monoxide hæmoglobin, as well as in the coloring matter of the blood (arterin, phlebin), there is a definite group of atoms which holds the carbon monoxide in combination; this group is characterized by the well-known absorption-bands in the spectrum. Moreover, it is certain that it is this same atomic group which, in crystallized oxyhæmoglobin and in arterin, holds the two atoms of oxygen in combination. Oxyhæmoglobin, hæmoglobin, carbon monoxide, as well as arterin and phlebin, all contain hæmochromogen, which can, in fact, be obtained from any of these substances in the form of crystals by a splitting up of the molecule under proper conditions. The method of obtaining the crystals of hæmochromogen is given in the article. Oxidation of hæmochromogen results in the production of hæmatin, and Hoppe-Seyler thinks it probable that in the former we have a ferro compound, while in the latter the iron is present in the ferri condition.

The proteids of the stromata of the red corpuscles have been determined by Halliburton and Friend.$^{178}_{\text{v.10, p.}}$[illegible] To obtain the stromata they mixed defibrinated blood with a 10-per-cent. solution of sodium chloride, allowed the corpuscles to settle, centrifugalized them, and repeated the process until a mass of corpuscles was gotten entirely free from serum. The hæmoglobin was then dissolved out with ether and the stromata precipitated by a 1-per-cent. solution of acid sodium sulphate. Extracts of this precipitate, after washing, were made in, first, a half-saturated solution of sodium sulphate; second, in 5-per-cent. solution of sodium chloride; third, in 5-per-cent. solution of magnesium sulphate. The extracts were examined especially for certain proteids which Halliburton had previously found in white corpuscles. They obtained an abundance of the proteid designated as cell-globulin β, a proteid which is found in leucocytes, and which Halliburton thinks is identical with fibrin ferment. Anything like nuclein or nucleo-albumen seems to be absent from the red corpuscles, nor could any indications of albumoses or peptones be found.

Mosso, in his article upon the degenerative changes of the red corpuscles (ANNUAL, 1888), made the assertion that when the blood of a dog is injected into the abdominal cavity of a chicken, the red corpuscles, after an interval of about three days, suffer an alteration such that clear hæmoglobin free areas appear in the corpuscles, identical in shape and position with the malarial germ which has been described so carefully of late by Italian and American observers. Cattaneo and Monti[409, v.9, p.406] give an account of some experiments made to test this assertion of Mosso. They corroborate his work so far that they find that the red corpuscles do show, at the beginning of the degenerative changes, certain clear spaces or areas within them which bear a superficial resemblance to the malarial germ, but differ from it in several important particulars, especially in the absence of true amœboid movements. Semi-lunar cells, which Mosso found in the blood after making the above experiment, and which he thought were identical with the semi-lunar form of the malarial organism, were obtained also by Cattaneo and Monti, but they have no hesitation in describing them as detached cells of the peritoneal epithelium, much larger than the malarial form and without the characteristic granules of black pigment (melanine). In a similar way they go through the various appearances seen in the degenerating red corpuscles, and show that they are different from the several stages of the malarial germ with which Mosso attempted to identify them. They arrive at the general conclusion that the alterations in the red corpuscles seen in malaria have no connection with those which occur in the degenerating corpuscles under the conditions above specified.

MUSCLE.

In one of Kühne's ingenious experiments upon the sartorius muscle of the frog, he observed that, if the end of the muscle was split into two branches and one of them was stimulated by a minimal current, the other limb contracted also. According to Kühne this experiment succeeds only when the two limbs are so made as to contain nerve-branches. He explained the phenomenon by supposing that in the undivided portion a single nerve-fibre forked, one branch going to each limb, and that the stimulation of one of these nerve-branches started an impulse which at the fork was deflected into the other branch. In fact, Kühne used the experiment as a direct proof that a nerve-impulse can be propagated in both directions along the fibre. A somewhat similar experiment was made by Aeby and Bernstein upon the rectus internus major muscle of the frog. Stimulation of one end of this muscle makes it contract throughout its whole length, although the fibres are divided transversely at one place by an inscriptio tendinea. Obviously, the explanation given to the phenomenon in the sartorius does not apply here, and it has been usual to account for it by an escape of current. Regéczy$^{246}_{v.44,p.400}$ takes up these two experiments and attempts to show that they deal with essentially-similar phenomena, and are capable of a simple explanation, The gist of his argument is this: If, in the last case, namely, the contraction of the whole rectus muscle when only one portion is stimulated, the contraction of the non-stimulated portion is owing to an escape of current, its contraction should be simultaneous with that of the portion directly stimulated. If, on the other hand, it is not in consequence of an escape of current, but is a secondary contraction caused by the negative variation in the contiguous fibres which are directly stimulated, then there should be a certain interval of time between the contractions of the two portions sufficient to permit the transmission of the negative variation over the stretch of muscle involved. In a number of experiments, the details of which are given in the paper, Regéczy demonstrates that the contractions of the two portions are not simultaneous. He concludes, therefore, that both of the phenomena mentioned in the beginning find a simple explanation in the theory that they are examples of secondary contractions of muscle-fibres from the negative variation in contiguous fibres which were directly stimulated.

Zaborowski$^{273}_{\text{v.25, p.615}}$ gives a description of experiments made to determine the origin of the new fibres which appear in regenerated muscle after partial or complete destruction. Many theories have been held as to the histological origin of the new fibres. Some hold that they are derived from the muscle-tissue which remains, either from the muscle-nuclei or the contractile substance, while others believe that they arise from connective-tissue cells of the perimysium and of the adventitia of the vessels. Zaborowski induced degeneration of the muscle by a new method,—in cold-blooded animals by heating to a certain point just sufficient to destroy irritability without bringing on rigor mortis, and in warm-blooded animals (rats) by injecting hot water into the muscle. By this method he was able to bring on death and degeneration in the contractile substance of some of the fibres without destroying the muscle-nuclei. It was found, under these conditions, that the nuclei multiplied rapidly according to three different methods of division. During the first day or two after the injury to the fibres the nuclei multiplied chiefly by indirect fragmentation, especially in those fibres which had been injured the most. After this, until the end of the first week, they increased by direct division. Subsequently, until the end of the second week, numerous examples of indirect division or karyokinesis were met with. As the result of this proliferation of the nuclei, a great many spindle-shaped cells were formed. Many or, perhaps, most of these afterward atrophied, while the remainder developed into striated muscle-fibres, as in the embryo, the cross striation appearing about the third month. Which method of multiplication of the nuclei gave rise to the cells which survived to form the new fibres was not determined. The point which the investigation seems to prove is that the new fibres of regenerated muscle are derived, or may be derived, from the nuclei of pre-existing muscle-fibres, and that the connective-tissue cells take no part in their formation.

Within recent years the significance of the latent period of contraction, as an interval in which preparatory changes take place preceding the mechanical shortening of the muscle, has been placed in doubt by the researches of Gad, Tiegerstedt, Regéczy, and others. The tendency has been to show that the latent period of 0.01 second, as usually estimated, is nearly entirely the result of latency in the apparatus, or is a consequence of the elasticity of the muscle which prevents the initial shortening of the muscle from being recorded. It has been asserted, therefore (Regéczy, ANNUAL of 1889), that either a latent period to the contraction of the muscle-fibres after stimulation does not exist at all, or else it is very short corresponding to the latency of the negative variation 0.001 second. Yeo,[178] v.9,p.[illegible] in a paper published during the present year, discusses the subject thoroughly, and gives the results of new experiments of his own, in which, as far as possible, latency and imperfections in the apparatus were eliminated. The beginning of the contraction was determined, not by the rise of the lever upon the recording surface, but by allowing the contraction of the muscle to break an electrical contact, the time of which was marked by an electric signal. The latency of the signal was carefully determined beforehand, and could, therefore, always be subtracted from the latent period observed. The chief conclusion to which he comes is that there is a genuine latent period between the entrance of the stimulus into muscle and the beginning of the contraction. The duration of this period in the gastrocnemius of the frog he estimates for temperatures between 13° C. and 16° C. (55.4° and 60.8° F.), at 0.0065 second, when the contraction of the whole muscle is measured, and at 0.005 second, when the contraction is measured locally at the point stimulated,—an estimate only half as great as that usually given in the text-books.

Danilewsky,[246] v.46,p.344 from experiments made upon frogs' muscles, arrives at the unexpected result that, in a simple contraction, and with a slight stimulus, as much as one-third of the whole energy liberated may be utilized as mechanical work. If stronger stimuli are used only one-fourth of the total energy can be obtained in the form of work. He states, moreover, that it is possible, under certain conditions, to recover half of the whole energy liberated as useful work. If his experiments are corroborated, it will show that our estimates hitherto of the proportion of useful work which can be got out of the muscle-machine have been far too low: the usual proportion given is one-fifth of the total energy liberated.

Biedermann $^{246}_{v.45,p.306}$ gives an account of some very curious experiments made upon the plain muscular tissue of the intestine and ureter. When the intestinal muscle was stimulated with a galvanic current, using unipolar stimulation, he found that, unlike voluntary muscle, the strongest effect was obtained from anodic stimulation, and that the anodic stimulus occurred at the making of the current. Furthermore, he discovered that the anodic making shock stimulated only the circular muscle-layer, while the cathodic making shock stimulated only the longitudinal layer of muscle; so that, to use his own words, one might employ the cathode as an agent to determine the degree of development of the external longitudinal muscle-layer in different animals. The result is certainly perplexing, and, granting that the action of the electrical stimulus is directly upon the muscle-tissue, and not upon the intrinsic nervous apparatus, it seems to indicate that the two muscular coats have different physiological properties. Similar experiments made upon the musculature of the ureter, which is supposed not to contain any nerve-fibres or cells, gave him results which are hard to understand. As long as the ureter was stimulated while *in situ*, he found that at the making of the current the stimulus started from the anode, the wave of contraction spreading in both directions, while at the breaking of the current a similar stimulus originated at the cathode. When, however, the ureter was cut out of the body and experimented upon, just the reverse phenomena were observed. At the making of the current the contraction started from the cathode and at the breaking of the current from the anode, as previously stated by Engelmann, and as is the rule in voluntary muscle. Biedermann states also that the involuntary muscle of the intestine and ureter does not lose its irritability so soon after the death of the animal as has been supposed. The apparent loss of irritability is caused simply by the cooling of the tissue. Hours after the animal was dead, if the intestine or ureter was warmed, by plunging in normal salt-solution at 38° C. (100.4° F.), for example, its irritability returned, and peristaltic movements could be aroused by proper stimulation, or such movements might even occur automatically. Lüderitz $^{20}_{Apr.1}$ has attempted to determine the effect of diminished temperatures on the movements of the intestines. The body-temperature of the animal experimented upon was diminished quickly by means of a cold bath; the abdomen was then opened under normal salt-solution kept at the desired temperature. He records that, in general, the intestinal movements diminished gradually in force with the lowering of the temperature. But even at a body-temperature of from 28° C. to 26° C. (82.4° F. to 78.8°F.) the movements were strong and approached the normal. In some cases, at a temperature of 7.6° C. (45.7° F.), when the respiratory movements had come to a stop, automatic movements were observed in portions of the intestine. At 0° C. (32° F.) it was found that the muscular tissue was still irritable to mechanical stimuli, though not to induction shocks. The author attempts to explain this latter fact by supposing that the induction shocks affect the intrinsic nervous mechanism, and this becomes paralyzed at a higher temperature,—at the temperature, in fact, at which the automatic movements cease.

MacMunn has described in several papers certain pigments found in various tissues of animals, both vertebrate and invertebrate, to which he gives the general name of histohæmatins. The histohæmatin of muscle goes by the special name of myohæmatin. This MacMunn has studied in the muscles of various animals. It has a definite spectrum which closely resembles that of hæmochromogen (one of the derivatives of hæmoglobin), but the two are not identical. Levy$^{83}_{v.13, p.309}$ has repeated some of MacMunn's work upon myohæmatin, using two methods of preparation. In both cases the solutions showed first the oxyhæmoglobin bands, but, if allowed to stand until the following day, three differently-colored strata were formed, of which the uppermost gave the spectrum of oxyhæmoglobin, the middle that of hæmoglobin, and the lowermost that of myohæmatin. He concludes from this that the myohæmatin described by MacMunn is not a distinct pigment peculiar to muscular tissue, but is one of the products of destruction of hæmoglobin. In the experiments made by him the destructive changes ensued in consequence of putrefaction. He considers, moreover, that the myohæmatin is, in reality, hæmochromogen, though his reasons for this are not convincing. He states that, while two different solutions of hæmochromogen, prepared by different methods (Stokes, Hoppe-Seyler), gave spectra slightly different from that of myohæmatin, they showed also some differences between themselves, and therefore concludes that all three are hæmochromogens, though he does not attempt to explain the differences in the absorption spectra. To the objections of Levy, MacMunn$_{\text{v.12, p.497}}^{83}$ replies that, in pieces of quite fresh pectoral muscle from the pigeon, when compressed to a proper thinness, the spectrum of myohæmatin can easily be obtained before decomposition has set in; moreover, the myohæmatin spectrum can be obtained from the muscles of invertebrates, *e.g.*, insects, in which there is no hæmoglobin. Hence, myohæmatin cannot be a disintegration product of hæmoglobin. He maintains that there are certain constant differences in the spectra of modified myohæmatin and hæmochromogen, the absorption-bands of the former lying nearer the violet end of the spectrum. MacMunn holds that the histohæmatins are independent of hæmoglobin, though closely related to it, and are possessed of similar respiratory properties.

Werther$_{\text{v.46, p.63}}^{246}$ finds, as usually stated in the books, that the lactic acid obtained from the muscle after contraction is the same as that formed in rigor mortis. The zinc salt in each case crystallized out, in the air, with two molecules of water; over sulphuric acid, with one molecule of water. With reference to the origin of the lactic acid, a number of theories have been proposed. According to some, it is derived directly from the glycogen in the muscle; according to the general theory of Hermann, it comes from the dissociation of the complex molecule of contractile substance. Apropos of the first theory, Böhm has stated that the development of rigor is not necessarily accompanied by a diminution in the glycogen unless decomposition sets in. Werther, however, finds a very important decrease in the amount of glycogen in the muscle after rigor appears, even where special precautions were taken to prevent the development of putrefactive changes. Werther's experiments throw no light on the origin of the acid.

NERVOUS SYSTEM.

The subject of trophic nerve-fibres is treated in an ingenious way by Kemp.$_{\text{Feb., Mar.}}^{80}$ After a general discussion of the subject of heat regulation, he gives a number of experiments of his own, the object of which was to determine whether muscles are supplied with both motor and trophic fibres. Curare is known to have a marked influence on the body-temperature. Animals in which it has been injected show diminished heat production, and their heat-regulating mechanism seems to be practically destroyed, since they behave like cold-blooded animals when submitted to changes in outside temperature. As curare is known to paralyze the end-plates of the motor nerves, the effect on body-temperature may be explained by supposing that it prevents the innervation of the muscles. So, Zuntz found that with curarized rabbits, whose temperature was kept constant by a warm bath, it was not possible to induce fever by injecting septic material into the body, while the same treatment of non-curarized rabbits caused a strong febrile rise in temperature. In the first case, any effect which the pyretic material might have had upon the heat-regulating mechanism could not make itself felt upon the metabolisms of the muscles. It might be inferred, therefore, that in ordinary septic fever the rise of temperature is caused by an increased innervation of the muscular tissue. Kemp believed that, if there are both motor and trophic nerve-fibres distributed to muscle, the curare must evidently paralyze both. Therefore, it might be possible, by regulating the dose of curare, to throw out first the motor fibres and then the trophic, and obtain in this way some direct evidence of the existence of the latter. Following out this idea, he injected curare in heavy doses and in minimal doses just sufficient to cause motor paresis. The animals were then placed in a calorimeter, so that the effect upon heat production could be determined, as well as the changes in body-temperature. The heavy dose of curare was followed by a fall in temperature preceded by a transient rise, while the calorimeter showed a diminished heat production. A light dose of curare was followed by a rise in body-temperature, and the calorimeter indicated a corresponding increase in heat production. Now, since the light dose of curare caused complete motor paralysis, the increased heat production could not have come from an increased innervation of the muscles through the motor nerves. If, as is assumed, it comes from increased metabolisms in the muscles, this must have been brought about by the agency of a second set of nerve-fibres—the trophic fibres—distributed to the muscles. The theory is that a strong dose of curare paralyzes both motor and trophic fibres, though the paralysis is preceded, as is usual, by a transient stimulation. But the motor fibres are more sensitive to the action of the curare than the trophic fibres; so that, with a certain dose, the motor fibres will be paralyzed, while the trophic fibres will be thrown into a hypersensitive condition, and thus cause the rise in temperature and increase in the heat production.

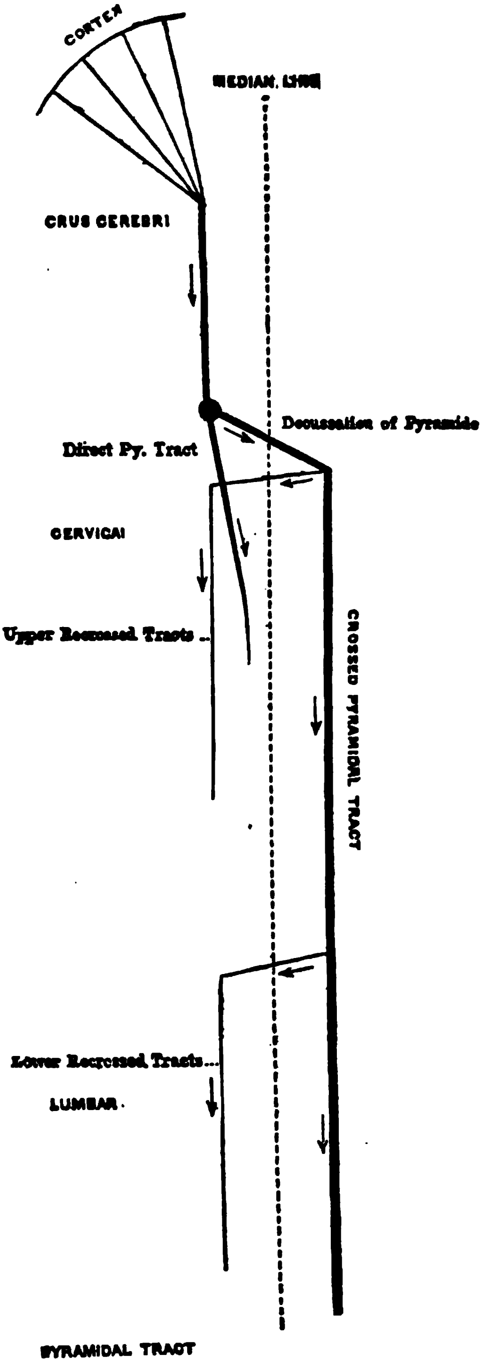
In experiments made upon rabbits to determine the velocity of the nerve-impulse, Reichert[242 May] obtained some curious and paradoxical results. The experiments were made upon the sciatic nerve, which was left in contact with the spinal cord, though the cord itself was severed in the lower dorsal or upper lumbar region. In some cases he found that the contraction of the gastrocnemius muscle occurred more quickly; that is, its reaction time was shorter when the nerve was stimulated near the cord than when it was stimulated near the muscle. In other experiments in the same series the more usual result was obtained, namely, that the reaction of the muscle followed more quickly when the nerve was stimulated near the muscle. In the experiments in which this latter result was obtained he determined the velocity of the impulse over a given stretch of nerve. He made it in one case 107 metres and in another 185 metres per second, whereas the usual rate of transmission of a motor impulse which has been accepted among physiologists has been from 30 to 34 metres per second.

Comparatively little is known of the nuclei of origin of the spinal nerves. Von Sass[20 May], has endeavored to work out the subject in part by making use of Gudden's method, which has yielded such valuable results when applied to the cranial nerves. According to Gudden's discovery, when a motor nerve is destroyed in a newborn animal, not only does the peripheral end degenerate, but the central end and the motor cells likewise. It has been ascertained, further, that cutting the nerve does not cause such complete degeneration on the central side as tearing it out near its origin. Von Sass applied this method to the median, radial, ulnar, and sciatic nerves in the rabbit. He then cut serial sections of the cord and counted the cells upon the two sides. Where there was a marked decrease in the number of cells he located the centre of origin for the nerve operated upon. He obtained the following results: For the median nerve the principal atrophy was in the upper two-thirds of the 8th cervical segment, the lowest third of the 7th, and upper third of the 6th cervical; for the radial nerve, the upper part of the 8th, of the 7th, and of the 5th cervical segments; for the ulnar nerve, the upper half of the

1st dorsal segment and the under and upper third of the 8th cervical segment; for the sciatic nerve, that part of the lumbar swelling which is most strongly developed. Work of this kind, when more fully carried out, will evidently be of great value in diagnosis of lesions of the spinal cord.

Reichert[112, Mar.] reports some new experiments upon the question of the direct excitability of the spinal cord. The cord was laid bare in the lower dorsal and the upper lumbar region, and the roots of the spinal nerves were torn away within the membrane. The cord was stimulated by induction shocks, single or tetanic, after a sufficient interval had been allowed for the animal to recover in part from the operation. As evidence of the stimulation of the cord the contractions of one of the leg-muscles (gastrocnemius) were recorded by appropriate means. In order to determine whether there was any escape of current from the point stimulated, a telephone was connected with some neighboring part of the cord. His results were quite uniform. The posterior columns responded readily to stimuli so weak that no escape of current could be detected, and Reichert believed that in this case it was the fibres of the nerve-root which took the stimulus. The gray matter, the anterior and the lateral columns, never responded except with stimuli so strong that an escape of current to the posterior columns was a matter of certainty.

In a preliminary communication Sherrington[178, v.10, p. [illegible]] relates briefly the effect of lesions of the "cord area" of the brain upon the pyramidal tracts. By "cord area" is meant "that area of the cortex injuries to which are followed by degeneration of nerve-fibres in the spinal cord." He first mapped out more carefully than had been done hitherto the course of the pyramidal fibres in the monkeys upon which his experiments were made. Two points of special interest came out of this part of the work: First, the tract extends as low as the origin of the coccygeal nerve-roots; second, from the second cervical to the second lumbar a portion of the pyramidal tract lies to the outside of the direct cerebellar tract, so that the cerebellar fibres are inclosed on both sides by pyramidal fibres. A sketch of the path of the pyramidal fibres, as marked out in the monkey, is shown in the accompanying figure. His experiments upon the cortex seemed to prove that there is no grouping of fibres in the pyramidal tract corresponding to the motor areas in the cortex. Even a small lesion of the cortex might be followed by a scattered degeneration over the whole area of the pyramidal tract, both in the cord and in the crusta. After leaving the cortical centres the fibres appear to become intermingled without any definite arrangement. After lesions of the leg area in the cortex degeneration was tracked only through the cervical enlargement. After lesions of the arm area the degeneration might extend even through the sacral region. This finds a possible explanation in the supposition that the pyramidal tract contains not only cortical somatic but also cortical visceral fibres. Any lesion of the cortex was followed by bilateral degeneration; that is, there was degeneration in the lateral column of the same side, as well as of the opposite side, that on the same side being less. This can be accounted for by the existence of what he calls "recrossed fibres," the course of which is shown in the diagram. Another interesting observation is that the pyramidal



Path of the Pyramidal Fibres in the Monkey.
(*Journal of Physiology.*)

fibres, as they are traced downward, especially in the upper part of the cervical and lumbar enlargements, may actually increase in number, indicating that the fibres branch as they descend. For a number of other interesting points reference must be made to the original article.

Gad and Joseph[820, p. [illegible]] give a valuable paper upon the relation of the nerve-fibres to the nerve-cells in the spinal ganglia. They used rabbits in their experiments and worked upon the ganglion jugular inferius. Section of the nerve between the ganglion and the skull was followed by complete atrophy of the central stump, with the exception of some of the median fibres. In the peripheral stump, between the cut end and the ganglion, the fibres were normal (after twenty-one to fifty-eight days), except a small group of fibres lying in the middle, which were degenerated. In the ganglion itself the band of fibres lies lateral to the cells, and is separated by a partition of connective tissue into a præseptal and postseptal group. After the section just described none of the nerve-cells showed any alteration, nor were its postseptal fibres injured, but the præseptal group was totally degenerated. On the peripheral side of the ganglion, although the majority of the fibres were intact, there was a median group of degenerated fibres more or less sharply marked off. Excision of a portion of the vagus on the peripheral side of the ganglion caused a partial degeneration in the central trunk, a complete degeneration in the peripheral trunk, while in the ganglion the nerve-cells and præseptal fibres were intact, and the postseptal fibres were totally degenerated. Cross-sections of the nerve between the ganglion and the skull showed again the median group of degenerated fibres. From these experiments it seems that a good portion, though not all, of the fibres remains intact as long as the fibres are in connection with the cells of the ganglion. Are these fibres afferent fibres? In order to determine this question satisfactorily physiological experiments were necessary. Electrical stimulation of the peripheral end (efferent fibres) of the cut vagus, gave, as was to be expected, no result; the fibres were entirely unirritable. This loss of function in the efferent fibres after section from their centre came on very rapidly. At the end of forty-eight hours it was far advanced and at the end of seventy-two hours their irritability had completely disappeared. Stimulation of the central end (afferent fibres) of the cut nerve gave the normal reflex action upon the respiration. So that the afferent fibres must have their centres either in the ganglia or in the central nervous system. That the true nutritive centres of the fibres lie in the ganglion, in the nerve-cells, is shown by the following experiments: When the continuity of the fibres on the central side of the ganglion was interrupted by a tight ligature, then, after two, or, at most, three days, stimulation of the central stump showed that the afferent fibres had lost their irritability, since no reflex was obtained upon either the respiratory apparatus or the heart. Now, since destruction of the vagus on the peripheral side of the ganglion had no effect on the afferent fibres, one must conclude that it is the afferent fibres which are connected with the cells of the ganglia. Histologically, there is abundant evidence, for the posterior root-ganglia, that the nerve-cells are connected with the fibres by **T**-shaped processes. This sort of connection permits us to suppose either that the afferent impulse passes through the ganglion cell on its way to the higher centres or that it passes by the cell, the **T**-connection with the cell serving only for the passage of the trophic influence which the cell exercises over the fibre. To solve this point, they attempted to determine whether the afferent impulse is delayed in its passage through the ganglion any longer than the mere length of the nerve-path would account for. The vagus was stimulated first on the peripheral and then on the central side of the ganglion, and the time elapsing before the appearance of the reflex respiratory movements was registered. Their average result was as follows:—

Reaction time—stimulation on peripheral side of ganglion, 0.123 second.
" " " " central " " " 0.087 "
Difference, 0.036 "

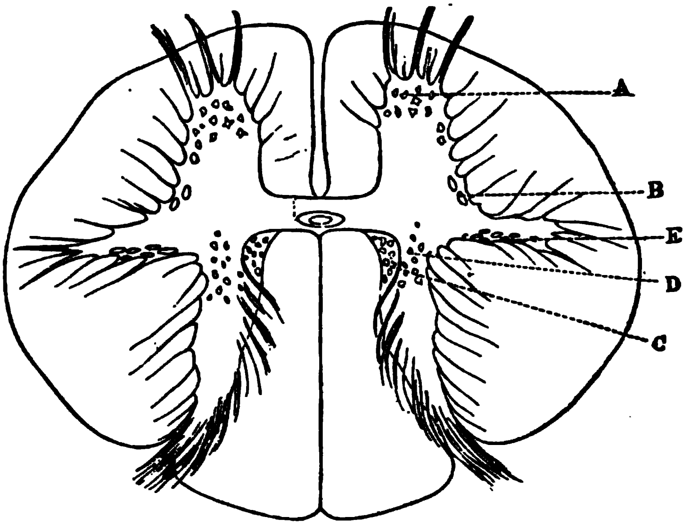
The result shows clearly that the afferent nerve-impulse is delayed perceptibly in the ganglion, and this can only be explained by supposing that the impulse passes through the cells. It may be mentioned that this result receives an unconscious corroboration in the experiments of Bradford (see p. 27). The authors conclude that the cells of the spinal ganglia are physiologically bipolar, being interpolated in the course of the afferent impulse. Their conclusions agree with the recent work of Pregaldino and of Joseph. (See ANNUAL, 1888.)

Ziehl[20 July] reports a case of degeneration or paralysis of the third branch of the trigeminal, somewhere between the Gasserian ganglion and the foramen ovale. He discusses chiefly the bearing of the case upon the subject of the origin of the gustatory fibres of the tongue. One result of the lesion was a total loss of taste in the anterior two-thirds of the tongue, showing that this portion of the tongue is supplied with gustatory fibres through the lingual branch of the fifth nerve. Inasmuch as the gustatory fibres, carried in the lingual, are known to run for some distance in the chorda tympani nerve, it follows, from this case as well as from others, that, though the fibres arise in the fifth nerve and pass out in the third branch, they must afterward leave this branch to reach the chorda tympani. The connection is probably made through the ganglion oticum, the plexus tympanicus, or petrosus superficialis minor, and the geniculate ganglion. The gustatory fibres finally join the lingual branch of the fifth along with the other chorda tympani fibres, and are distributed to the tongue with this nerve. Gowers has advocated the view that the gustatory fibres of the chorda tympani (therefore of the lingual) really arise from the brain in the glosso-pharyngeal nerve, making the glosso-pharyngeal the only nerve of taste. The case under discussion amounts to a demonstration of the incorrectness of this view, granting that Ziehl's diagnosis of the lesion was accurately made.

White$^{178}_{\text{v.10,p.341}}$ has repeated and extended the observations previously made by him on the sympathetic ganglia of man and other mammalia. In man the superior cervical ganglion was examined histologically in a number of different persons who had died from various causes. It was found that in young children the nerve-cells were entirely normal, while in the adult they were shrunken, granular, pigmented, and in some cases non-nucleated. In the ganglia from three persons over 70 years of age the cells were very few in number, and appeared to be simply small masses of pigment. He concludes, therefore, that in adult life the superior cervical ganglion is a degenerated, atrophied, and functionless organ. Since he found the same appearances in the semi-lunar ganglion, he infers that all the collateral ganglia connected with the sympathetic chain in man undergo a similar degeneration. The nerve-fibres, however, of the cervical sympathetic and of the splanchnic presented a perfectly-normal appearance, even in the adult human subject, and are therefore without doubt functional.

In the lower mammalia, as in the young human subject, the ganglia in question showed no signs of degenerative changes. Examination of the lateral ganglia of the sympathetic chain in adult man showed that they are normal up to middle age, at least.

The effort to homologize the cranial with the spinal nerves as segmental appendages of the central nervous system has led to many classifications of the cranial nerves and to many divergent views of their origin and relations to one another and to the spinal nerves. The subject has usually been approached from the side of embryology, but Gaskell in the present paper, $^{178}_{v.10,p.183}$ by the application of new methods, the study of the histology of the nerves and their centres in the adults of various vertebrates, has come to some new conclusions, which he supports with a great number of original observations and arguments. His views are peculiar, and differ in many respects from those advanced by the embryologists. For a thorough understanding of the paper a knowledge of Gaskell's previous work is necessary. So, on account of the new terms which Gaskell has introduced and which can scarcely be explained by short definitions, an abstract of the paper is likely to be unsatisfactory. In former papers upon the spinal nerves he had shown or stated that, in addition to the division into afferent and efferent fibres, the nervous system is capable of two other general classifications, namely, into somatic and splanchnic fibres or into anabolic and catabolic fibres. By somatic fibres are meant "those nerves which supply structures derived from the epiblast and from that part of the mesoblast which forms the mesoblastic somitis." By splanchnic fibres are meant "those nerves which supply structures derived from the hypoblast and the rest of the mesoblast," *e.g.*, the vessels and intestines. Each group, splanchnic and somatic, contains both afferent and efferent fibres. A typical segmental spinal nerve consists, in terms of this classification, of (1) afferent nerve-fibres, both splanchnic and somatic, and both in connection with the cells of the posterior root-ganglion; (2) efferent fibres, both splanchnic and somatic, which may be either non-ganglionated (that is, not run into a ganglion) or ganglionated (that is, make connection with a sympathetic [vagrant] ganglion). These latter are characterized by their small size, and make up what is ordinarily known as the ramus communicans, or visceral branch of the spinal nerve. The efferent fibres, both somatic and splanchnic, may be traced to certain definite groups of cells in the spinal cord, the positions of which are indicated in the accompanying diagram. The efferent somatic fibres arise from the cells (A) of the anterior horn of gray matter. The efferent splanchnic fibres take their origin in the cells of Clarke's column (C), the cells of the lateral horn (B and E), and the scattered cells of the posterior horn (D). In a similar way, he believes that the cranial nerves, with the exception of the olfactory and optic, form a series of segmental nerves, constructed on the same type as the spinal nerves, but modified in such a way as to form two groups. Group I consists of at least four segmental nerves, each of which has lost certain components of a typical nerve, owing to the disappearance of the parts which they originally supplied. The nerves of this group are: the oculomotor, or third cranial; the trochlear, or fourth cranial; the motor portion of the fifth, together with the sixth cranial, and the facial, or seventh cranial. The third and fourth cranial nerves, according to this view, and in opposition to most theories, represent two complete segmental nerves, in which, however, certain parts have become aborted. Gaskell states that he can still find in these nerves, near their origin, what seems to be a rudiment of a former stationary ganglion, corresponding to the posterior root-ganglion of a spinal nerve. Group II consists of



SECTION OF THE SPINAL CORD IN THE THORACIC REGION.
(*Journal of Physiology.*)

at least five complete segmental nerves which are both cranial and spinal in origin. The peculiarity of this group is not the loss of any of the components of a typical nerve, but the splitting up of the different original segmental nerves and their recombination to form what are known as the vagus, glosso-pharyngeal, hypoglossal, and spinal accessory nerves, and the sensory portion of the trigeminal. The idea which Gaskell holds with reference to the structure of the cranial and spinal nerves is best shown by his diagrammatic representation given in the accompanying figure. In Fig. 1, showing a section of the medulla, the letters have the same significance as in the section of the cord already figured. The various kinds of fibres are indicated in different designs, as follows:

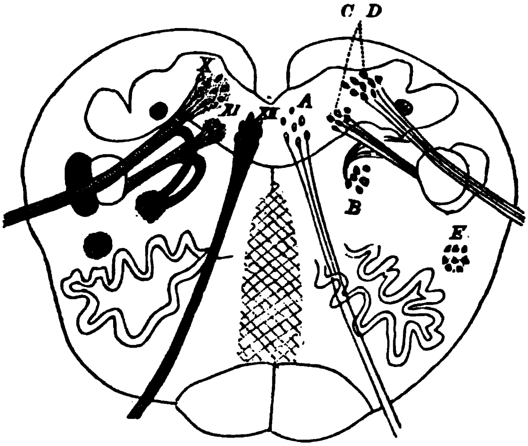


FIG. 1.—DIAGRAMMATIC REPRESENTATION OF THE STRUCTURE OF THE CRANIAL AND SPINAL NERVES.
(*Journal of Physiology.*)

■, somatic efferent fibres (nucleus of *XII*); ▨, splanchnic non-ganglionated efferent (so-called motor nucleus of *X*); ░, splanchnic ganglionated efferent (part of nucleus of *X* and *XI*); ■, splanchnic afferent (ascending root of *X*); ▓, somatic afferent (ascending root of *V*). In Fig. 2, showing a schematic longitudinal section of the central nervous system, the designs have the same significance, as far as the kind of fibres is concerned. The composition of the two groups of cranial nerves is indicated, and the number of complete cranial nerves which are represented by the existing nerves. On the first, second, third, and fourth segmental nerves the existence of a former stationary ganglion is indicated.

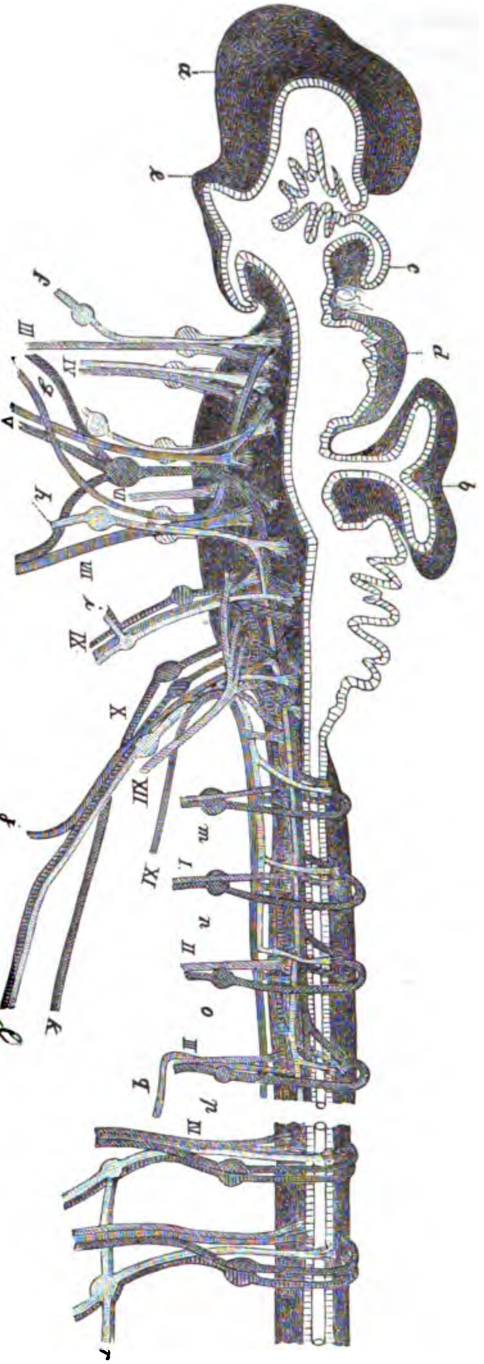


FIG. 2.—SCHEMATIC LONGITUDINAL SECTION OF CENTRAL NERVOUS SYSTEM. (*Journal of Physiology.*)

In the latter part of the paper Gaskell proposes a new theory of the origin of the vertebrate nervous system which is strikingly original. Briefly stated, he believes that the histology of the central nervous system shows that it arose originally as a bilateral chain of ganglia lying vertical to a non-nervous tube, and extending as far forward as the tuber cinereum and infundibulum. Afterward the nervous matter grew around and enveloped and penetrated the non-nervous tube, so that at present the chief representative of this tube is the canalis centralis, the substantia gelatinosa centralis et Rolandi, and the supporting neuroglia substance permeating the cord. At the anterior end of the tube "the ventral chain of ganglia, instead of spreading round to the dorsal side of the tube, is connected by means of strong encircling commissures, forming a commissural collar around the tube, with a series of ganglia lying on the dorsal side of the tube, whose function is of a higher character than that of the ventral chain, and which gives rise to no outgoing nerves except those of such special senses as sight and smell." The tube around which the nervous system originally developed he takes to be the homologue of the invertebrate alimentary canal; the ventral chain of ganglia corresponded to that of the invertebrates, the commissural collar became the present crura cerebri, and the dorsal or supra-œsophageal ganglia developed into the cerebral hemispheres. A complete homology is thus established between the vertebrate and the invertebrate nervous systems. The tube around which the vertebrate central nervous system is developed represents, according to the hypothesis, a part of the ancestral invertebrate alimentary canal. Posteriorly, this canal communicated with the exterior through the neurenteric canal, and anteriorly there was originally an œsophagus and mouth. In hunting for the remnant of this opening, Gaskell made the interesting discovery that there is in the tuber cinereum a small canal which opens widely into the infundibulum, and, passing toward the corpus mamillaire, gradually grows smaller and closes as it comes to the surface under the pia mater. This he interprets as the original œsophagus. The theory seems to fit neatly together in many parts, but it requires that the origin of the present vertebrate alimentary canal should be explained. Gaskell promises another paper on this subject in connection with the history of the cranial nerves belonging to group II, namely, the vagus, glosso-pharyngeal, hypoglossal, and spinal accessory, whose development he thinks is undoubtedly connected with the formation of the alimentary canal.

Halliburton[178, v.10, p.4] reports the analysis of a number of specimens of cerebro-spinal liquid marrow from patients suffering with hydrocephalus or meningocele. His examinations show that this liquid is not comparable to the usual serous liquids, such as the pleural and peritoneal exudations. The serous liquids chemically resemble lymph; they are, in fact, equivalent to a diluted blood-plasma. The cerebro-spinal liquid has a very different composition. It contains only a little proteid, which is partly a globulin, always present, and partly an albumose or peptone, which, however, is not invariably present. The presence of these last two proteids—the albumose and peptone—is interesting, and difficult to account for. The liquid contains, in addition, a reducing substance,—that is, a substance capable of reducing copper salts in an alkaline solution. The existence of this reducing substance has been known for some time, but its nature has not been determined. Halliburton believes that it is pyrocatechin, and gives good reasons for his conclusion. The salts of the cerebro-spinal liquid are the same as those found in lymph or blood.

CIRCULATION.

Martin and Applegarth[215] report a series of experiments, the object of which was to determine the temperature limits of the vitality of the mammalian heart. The experiments were made upon the heart of the cat, isolated in the way devised by Martin, and give another example of the satisfactory and important results which this method of studying the heart may be expected to yield. In this case the heart was kept alive by feeding the coronary arteries directly with blood, the supply-flasks of blood being connected with the stump of the aorta at the origin of the coronaries. Not the least interesting result of their experiments was that the heart, treated in this way, continued to beat normally for several hours, though its cavities were not distended with blood. With reference to the chief object of the experiments, it was found that the isolated heart—that is, the heart cut off from all connections with the rest of the body—may be cooled down to a temperature of 16.5° C. and not be killed, since, when warmed, it revives and beats normally. Usually, however, the cat's heart dies at 17° or 18° C. On the other hand, the lethal point for high temperatures lies between 44.5° and 45° C. Though this seems to be the maximum temperature which the heart will stand, nevertheless it beats best—that is, most rapidly—at a lower temperature, 41.3° C., which the authors designate as the optimum temperature. Both the maximum and optimum temperatures may be raised somewhat by carefully regulating the rapidity of the rise of temperature when near the critical point, allowing the heart to accommodate itself, to some extent, to the abnormal conditions. The care, thoroughness, and ingenuity of the experiments are beyond all praise.

Some experiments by Krehl[320, p. 263] throw a little additional light on the causation of the first heart-sound. He opens the chest of a dog, exposes the heart, and introduces a specially-made instrument through each auricular appendage, so that they can be pushed down at any moment into the auriculo-ventricular orifice, and thus hold back the auriculo-ventricular valves. If the person auscultating the heart was not aware whether the valves were being held back or not, it was found that he could not detect any difference in the first sound under these two conditions,—which would seem to show that the valvular element in this sound is of very subordinate importance. Another interesting experiment which he records, and which points to the same conclusion, is that when an animal is bled to death through the carotids the second heart-sound soon disappears, apparently as soon as the quantity of blood is no longer sufficient to close the semi-lunar valves. The first sound, however, can be heard for a long time. Moreover, after cessation of the ventricular contractions, auscultation of the auricles, whose contractions usually persist for some time, detects a sound similar in tone to that of the first heart-sound, and obviously in this case a purely-muscular sound.

McWilliam $^{178}_{v.9,p.346}$ attempts to establish upon the mammalian heart certain of the facts of heart inhibition which have been discovered on the heart of the frog and the terrapin. He finds that the auricles are strongly influenced by vagus stimulation, and there is some evidence that the effect is exerted upon the auricular muscle directly, since during vagus stimulation the muscle is very refractory toward direct irritation. Upon the ventricles the vagus not only slows the beats, but exercises a depressing action upon the force of the contractions. Perhaps the most interesting result of his work is the statement that in the mammalian heart there is a local inhibitory area on the dorsal aspect of the auricles, stimulation of which causes a distinct inhibition, as when the vagus itself is excited. This area contains numerous nerve-cells and ganglia, and is apparently connected by nerve-fibres to the different portions of the auricles and ventricles. The vagus fibres also seem to make connections with these cells. When a 4-per-cent. solution of cocaine hydrochlorate was applied locally to the area, not only was subsequent direct stimulation of the spot without any effect, but stimulation of the vagus itself caused no inhibition.

A paper by Fano and Fayod $^{409}_{v.9,p.143}$ gives an account of experiments made upon the electrical variations in the auricle of the heart and the influence exerted upon these variations by the vagus nerve. The results of their work support the general view of Gaskell upon the nature of the inhibitory action of the vagus on the heart, described in the ANNUAL of 1888. The experiments were made upon the auricles of one of the turtles, *Cestudo Europea*. In a former paper Fano had shown that the auricular muscle, in addition to its rhythmic contractions, suffers a periodic variation in tonicity, the rhythm and extent of which may vary in the two auricles. In the present paper it is proved that there is also an electrical rhythm or pulse, which can be registered by the capillary electrometer, and by means of suitable appliances may be photographed. Ordinarily, the rhythm in the electrical changes accompanies the functional rhythm; that is, the contractions of the heart. Nevertheless, the two phenomena are, to a large extent, independent; for in some cases in which the contractions were absent the rhythmic changes in electrical condition were still present, indicating that the latter changes are a more persistent and more primitive property of the heart-muscle metabolisms than the contractility. The effect of stimulation of the vagus on these electrical variations is particularly interesting. Excitation of the vagus caused a reversal of the electrical changes, producing what they call a negative electrical pulse. Fano interprets the action of the vagus on the heart in the same way as Gaskell. Since the ordinary electrical change accompanying the heart contractions is known to be caused by or to be the expression of catabolic changes, then the opposite electrical variation during stimulation of the vagus implies an opposite series of chemical changes in the heart; that is, anabolic changes. In other words, the vagus is the trophic or anabolic nerve of the heart. To explain the rhythmic changes in the tonicity of the auricular muscle spoken of in the beginning of the review, they suppose that there occur in the heart periodic augmentations of the nutritive or anabolic changes. Since the nutritive conditions of the two auricles are different, one being supplied with arterial and the other with venous blood, we can understand why the changes in tonicity in the two chambers are not synchronous or of the same amplitude.

Heubel$^{246}_{v.46, p.461}$ gives, in a long paper, an account of numerous experiments made upon the frog's heart, the object of which was to show that after the development of rigor mortis the heart can again be made irritable and automatically contractile by feeding it with blood. To produce rigor mortis in the heart he made use of a variety of methods. The action of strong solutions of neutral salts, *e.g.*, $NaCl$, $MgSO_4$, NH_4Cl, $(NH_4)_2SO_4$, of chloroform, of ether, of alcohol, of caffein, veratrin, strychnine, heat, etc. The condition of rigor was determined by the appearance of the heart-muscle, its rigidity, its acid reaction, its loss of irritability, etc. He was not able, however, in any case, to let the action of the rigor-producing agent go too far. But he states that in all cases genuine rigor was produced, and then, by feeding the heart with blood, under pressure it was brought back to an irritable and contractile condition. Finally, in a number of cases the heart was left for several hours in a moist place until rigor mortis developed in the usual way. Nevertheless, he was able to bring these hearts back to life again by feeding with blood. The many points of resemblance between rigor mortis and ordinary muscle contractions have been known since Hermann's able investigations. The mechanical, chemical, and electrical changes are alike in the two conditions, so that Hermann has explained rigor as the final contraction in which the chemical changes have gone a step farther than in normal contractions. Against such a view it has been urged that the muscle does not and can not return to its normal condition after rigor has once developed, whereas, after the condition of contraction, no matter how prolonged, the muscle returns quickly to its irritable state. Heubel's work seems to remove this objection, in part, at least. The author concludes, with Hermann, that death-rigor is an actual contraction, and, on the other hand, each contraction is a momentary and transient rigor. The chemical changes in the two cases must, therefore, be essentially the same. The observations of Brown-Séquard (ANNUAL, 1888) upon the slow contractions and relaxations of muscles in rigor fall in with the theory of the identity of rigor and contraction.

Following out the lines laid down in Gaskell's recent work upon the origin and course of the vasomotor nerves, Bradford$^{178}_{\text{v.10, p.[illegible]}}$ has made a special investigation into the vasomotor nerves of the kidney, employing, however, purely physiological methods. The spinal cord was laid bare in the region upon which the experiment was to be made, and the roots of the spinal nerves, or the common trunks of the nerves after previous section of the posterior roots, were stimulated. The effect upon the kidney was recorded by means of the oncometer,—an instrument inclosing the kidney and working on the principle of a plethysmograph. The effect upon the general blood-pressure was shown by a mercury manometer connected with the carotid. Vaso-constrictor effects upon the kidney were easily obtained. Bradford finds that the constrictor fibres going to the kidney leave the cord in the anterior roots of the spinal nerves from the sixth dorsal to the fourth lumbar, but they are most abundant in the eleventh, twelfth, and thirteenth dorsal nerves. He was able to show, also, that the kidney receives vaso-dilator fibres. The discovery of these fibres is perhaps the most interesting and novel point made in the paper. The dilator fibres have about the same origin as the constrictors, being most numerous and constant in the anterior roots of the eleventh, twelfth, and thirteenth dorsal-spinal nerves. He demonstrated the existence of these fibres by stimulating the nerves with slowly-repeated induction shocks, one per second. In this case a dilatation of the kidneys was observed, while the general blood-pressure either remained constant or suffered a slight fall. When more rapid stimulation was employed the constrictors were stimulated, the kidney contracted, and there was a rise of general blood-pressure. In the case of the splanchnic nerves stimulation of the peripheral cut end with rapidly-repeated stimuli gave the usual strong rise of general pressure. On the other hand, stimulation with slowly-repeated stimuli gave a fall of general blood-pressure, from which he concludes that the splanchnic nerves contain vaso-dilator fibres, as well as vaso-constrictors for the abdominal viscera, including the kidneys. Reflex excitation of the vasomotor nerves of the kidney, through stimulation of various sensory nerves, caused most frequently, though not invariably, a contraction of the kidneys from stimulation of the vaso-constrictor fibres. When, however, the central ends of the posterior roots of the eleventh, twelfth, and thirteenth dorsal nerves were stimulated he often obtained an expansion of the kidneys, indicating that the vaso-dilators had been reflexly stimulated. The author remarks, incidentally, that in this last experiment the latent period of the reflex was very much shorter than when the trunks of these same nerves were stimulated beyond the ganglia. He gives no explanation of this, but it seems to the reviewer that it corroborates the work of Gad and Joseph,$^{320}_{\text{Nos. 3 \& 4}}$ who showed that a sensory impulse is always delayed in the ganglia, and must, therefore, pass through the ganglion nerve-cells.

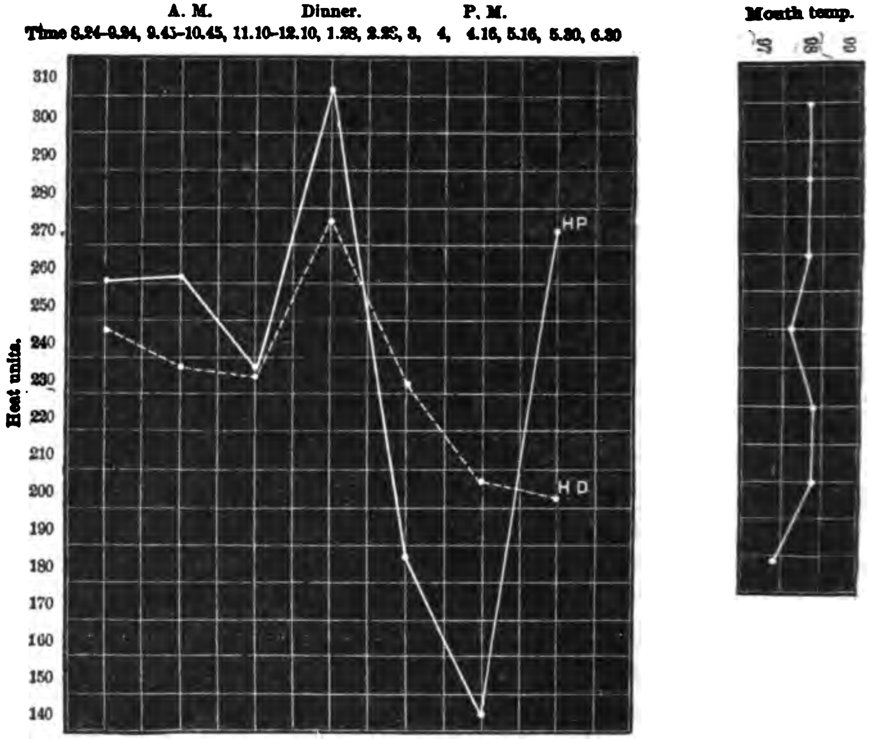
The innervation of the blood-vessels of the brain forms the subject of an investigation by Hürthle.$^{246}_{\mathrm{B.44,p.561}}$ He measures the blood-pressure in the aorta and in the circle of Willis by cutting a common carotid and inserting a cannula into each end, the external carotid having been previously ligated. The cervical sympathetic was then cut, but without any effect upon the pressure in the circle of Willis, showing that all the vaso-constrictors to the brain-vessels are not contained in the cervical sympathetic. Stimulation of the peripheral end of the cervical sympathetic was followed by a rise in pressure in the circle; hence, we must conclude that some of the constrictor fibres to the brain take this path. At the same time that the pressure in the brain rises in the experiment just mentioned there may be a rise also in the general blood-pressure. It is not probable that this latter effect is caused by the mere narrowing of the vessels in the brain, since, if the cervical cord had been previously cut, no such effect in general blood-pressure was obtained after stimulation of the sympathetic. It seems more probable that the constriction of the brain-arteries produces an anæmia sufficient to stimulate the vaso-constrictor centre in the medulla. Neither section nor stimulation of the vagus nerve in the neck had any effect upon the pressure in the circle of Willis; hence, no vasomotor fibres pass to the brain in the vagus nerve. Dyspnœa, brought on artificially by closure of the air-passages, seems to lead to a dilatation of the vessels of the brain. Stimulation of the central end of sensory nerves had no influence upon the size of the blood-vessels in the brain. Of anæsthetic and pharmacological reagents, morphia has no constant effect, causing sometimes a dilatation and sometimes a constriction of the cerebral vessels; chloroform leads to a dilatation, or, at least, to an increase in the velocity of the blood-flow, since the aortic pressure increases, while the pressure in the circle of Willis tends to sink. So, from poisoning with carbon monoxide, there is a marked dilation of the brain-vessels which lasts until shortly before death.

It is taught at the present time, even in the best text-books, *e.g.*, Foster, that the vaso-constrictor fibres are in all cases non-medullated, and therefore of sympathetic origin, while the vaso-dilator fibres take a direct course in the spinal or cranial nerves. Nevertheless, there seems to be abundant evidence that vaso-dilator fibres run in the sympathetic chain and its branches, whether such dilator fibres are medullated or non-medullated. Bradford, as described above, gets evidence for this from his experiments on the vasomotors of the kidneys. Some years ago Dastre and Morat demonstrated the same fact for the cervical sympathetic in dogs. They found that stimulation of the peripheral end in the divided sympathetic in the neck caused not only constriction of the ear, etc., as has been known for so long a time, but also and simultaneously a dilatation in the lips, jaws, gums, palate, nose, etc., in the area spoken of usually as the bucco-facial region. They followed their vaso-dilator fibres from the spinal cord through the rami communicantes to the first thoracic ganglion, and thence, by way of the annulus of Vieussens and inferior cervical ganglion, into the cervical sympathetic. Morat,[410 Jan., Apr.] in a recent paper, endeavors to follow these fibres from this point to their termination. The bucco-facial region is supplied by the branches of the fifth cranial nerve. Stimulation of the maxillary branches of this nerve causes a dilatation, and Morat endeavors to show that the dilator fibres contained in it have two origins—one from the medulla, and arising with the fibres of the fifth, and one from the sympathetic, as discovered by them, the fibres afterward making connection at some point with the fifth nerve. The point to be determined was the anatomical path of the dilator fibres from the sympathetic to the fifth. From the superior cervical ganglion a number of branches spring, but there are two main groups—the carotid plexus and the intercarotid plexus. Section of the branches that make up the intercarotid plexus had no effect on the dilatation after stimulation of the cervical sympathetic, hence the communication does not take place along this path. The carotid plexus makes connection with the fifth by branches to the ophthalmic ganglion, the spheno-palatine ganglion, and the Gasserian ganglion itself. Leaving out the first connection as having no bearing on this case, he turned his attention to the other two. He first cut the Vidian nerve, the path by which the sympathetic fibres connect with the spheno-palatine ganglion, and found, upon stimulation of the cervical sympathetic in the neck, that he still got the vaso-dilatation. Hence, by exclusion, the path of connection must be through the Gasserian ganglion itself. To demonstrate this point, he cut through the trigeminal, carrying the section through the middle of the Gasserian ganglion. After this operation stimulation of the cervical sympathetic no longer gave vaso-dilatation. He concludes, therefore, that the vaso-dilator fibres to the bucco-facial region join the trigeminal at the level of the ganglion of Gasser.

RESPIRATION AND HEAT REGULATION.

By means of the absorptiometer of Bohr, Jolin$^{320}_{p. 306}$ has determined for the hæmoglobin of the guinea-pig and the goose the volume of oxygen and carbon-dioxide gas absorbed at different pressures. Like Bohr's results upon the hæmoglobin of the dog (ANNUAL, 1888), he finds that the amount of gas held in combination with the hæmoglobin does not vary directly with the pressure. At high pressures the amount diminishes slowly with the pressure, while at low pressures (under 20 or 30 millimetres) it diminishes very rapidly; so that a curve constructed upon the pressures as an abscissa, and the varying amounts of gas absorbed as ordinates, will be a curved line with the concavity turned toward the abscissa. It is very interesting to know also that the volume of carbon dioxide which can combine with hæmoglobin is, in both animals, considerably greater than the volume of oxygen which can be absorbed at the same pressure. The compound of carbon dioxide and hæmoglobin seems to have the same general properties as that of oxygen and hæmoglobin. At low pressures each of the compounds dissociates readily. As is well known, the way in which the carbon dioxide is combined in the blood has never been satisfactorily explained. If it can be demonstrated that there is a carbon-dioxide hæmoglobin with properties similar to those of oxyhæmoglobin, then the way seems to be open to a more complete understanding of this point. The author does not attempt to apply his facts to the explanation of the gaseous exchanges in the blood.

Ott$^{1}_{Mar. 30}$ has constructed a new calorimeter designed for experiments upon heat production and dissipation in man. In the accompanying chart there is given a graphic record of the results obtained from a man in an experiment continuing through seven hours, the man lying at ease in the apparatus. The upper figure gives the temperature as observed in the mouth; the lower gives the curves of heat production (H. P.) and heat dissipation (H. D.). It will be seen that there is no parallelism between the temperature of the body and the amount of heat production. The curve shows, moreover, what has been stated before by Fredericq and others, that the maximum amount of heat production occurs at 10 A.M. and at 2 P.M. In a second series of experiments with the same apparatus Ott found that a man weighing 140 pounds (63.6 kilogrammes) produced 410 heat-units each hour. Of the total amount of heat lost from the body he estimates that 14 per cent. is given off through the lungs. In a second paper Ott$^{47}_{Jan}$ quotes a number of clinical cases of lesions of the brain to prove his views



with reference to the pressure of heat-centres in the cerebrum. The position of the centres for whose existence he uses these cases are, first, about the fissure of Rolando; second, the Sylvian centre, localized in the lower animals at the junction of the supra- and post- Sylvian fissures; third, in the corpus striatum; fourth, in the thalamus. None of these cases seem to be very clearly demonstrative of the existence of these centres. White$^{2}_{Jan}$ records a number of experiments on rabbits, which, to some extent, corroborate the views of Ott. In some preliminary experiments

White states that simple administration of an anæsthetic (ether), or the operation of trephining the skull and irritating the cortex, will often cause a fever, which, however, lasts only a short time. But injury to the corpus striatum or the thalamus was always followed by a much more distinct rise of temperature, lasting for many (*e.g.*, fifty-eight) hours.

In a recent paper Richet[1066] claims to have discovered that under the influence of heat, sufficient to cause a rise in body-temperature, the respirations suddenly increase in number to 300 or 400 a minute. He calls this condition polypnœa; the object of it is to regulate the body-temperature by the panting of the animal. Richet supposed that the condition was brought on by reflex stimulation of the medulla. But Ott[242, Apr., May] contends that this so-called thermo-polypnœic centre lies farther forward in the gray matter, at the most anterior part of the third ventricle. When this portion of the brain was destroyed by a blunt seeker an increase in body-temperature was not, as formerly, followed by polypnœa. In fact, he considers this centre as one of the heat-regulating or thermotaxic centres, for whose existence he and others have been contending for some time. It is acted upon reflexly, and its special method of regulating the body-temperature is to stir up the respiratory centre and in this way lead to a great heat dissipation. Polypnœa results from the reflex stimulation of this thermotaxic centre. In addition, Ott supposes that there are five other thermotaxic centres, two in the cortex and three (four, counting the polypnœic centre) in the basal portion of the cerebrum. Besides these centres he includes, as part of the heat-regulating apparatus, the respiratory, vasomotor, and sudorific centres, to which he gives the general name of thermolytic centres. One of the thermolytic centres—the respiratory—is, as we have seen, in close connection with one of the thermotaxic centres—the polypnœic centre described above. Another one, the vasomotor centre, is in close connection with the thermotaxic centre lying in the caudate nucleus. The thermogenic centres, those which cause an actual increase in heat production, lie in the spinal cord. Ott, unlike most physiologists and pathologists, believes that the condition of fever is not necessarily associated with increased heat production or dissipation, but that it is a "disease of thermotaxis" or heat regulation alone, and affects the four basal centres. So antipyretics, as a rule, act directly upon these centres, disordered by the fever, and restore them to normal action, while the metabolisms of the body at large are neither excited nor inhibited by their use.

SECRETION.

Langley$^{178}_{\text{v.10, p.}}$[illegible] gives a more complete account of experiments on the salivary secretion, previously published in the form of a preliminary communication. The most important fact brought out in the experiments is that, in the submaxillary, the sublingual, or the parotid gland, stimulation of the sympathetic fibres always causes a distinct secretion of saliva if previously the cerebral fibres have been stimulated for a brief time. It is generally known that, in the dog, stimulation of the sympathetic fibres alone, in the case of the parotid, gives no secretion, or, at best, a very scanty secretion of 1 or 2 drops. It is therefore a very interesting addition to our knowledge of these nerves to know that, if the stimulation of the sympathetic fibres is preceded by a stimulation of the cerebral fibres, then a distinct secretion will result. The effect holds good, naturally, only for a certain time; that is, after a sufficiently long interval the effect of stimulation of the cerebral fibres has no influence upon subsequent stimulation of the sympathetic fibres. The only explanation of the effect which Langley gives is the general statement that stimulation of the cerebral fibres "increases the irritability of the gland for impulses reaching it by the sympathetic nerve."

In a second paper Langley gives an account of the microscopic appearances of the fresh cells of the mucous glands and the effect of various reagents on these cells. The mucous cells in the first state contain granules like those of albuminous cells and the demilunes, with the difference that the granules are larger. The granules are scattered throughout the cell without any definite arrangement. He thinks that these granules are mucous in nature. When the cells are irrigated with various reagents, water, acids, dilute alcohol, etc., the granules swell up, become pale, and finally disappear. As the granules swell, a protoplasmic net-work comes out more or less distinctly in the cells. He thinks it probable that the granules go to form the mucous substance. Observations upon a number of mucous cells from many places convince Langley that no general description of a mucous cell can be given. The nearest he can come to a general description is, in his own words, "that originally protoplasmic cells containing small, proteid granules form spheres of mucous substance; these may occupy nearly the whole of the cell or leave free a basal portion. The spheres differ in their chemical character, so that they may be more refractive than the cell-substance or become so on treatment with salt-solutions. In some cases the mucous spheres increase at the expense of the finely-granular protoplasm and run together, so that the protoplasm is then present as a net-work running through the mass of mucin. The amount of protoplasm left as a net-work varies in different cases, and it may be nearly and possibly entirely absent from the luminar portion of the cells. In other cases the spheres increase at the expense of the cell-substance without running together, so that they are separated from one another, for the most part, by fluid and not by cell-substance."

Drasch,[820 p.96] by means of a simple arrangement, was able to study the glands in the nictitating membrane of the living frog, and to keep them under observation for many hours. The results obtained are interesting and valuable largely on this account,—that they were seen directly in the living gland. He distinguishes three different forms of the alveolus, according to the stage of activity, and the changes in form seemed to be owing partly to a contraction of the basement membrane and partly to an increase or diminution in the size of the secretory cells. The change in form, the movement of the alveolus, was produced either through the membrane alone or through the cells alone, or from both causes. He felt justified, therefore, in concluding that the innervation of the basement membrane is different from that of the secreting gland-cells. The glands of the membrane are supplied both with cerebral fibres (from the trigeminal) and sympathetic fibres arising from the ganglion nervi vagi. Stimulation of these two sets of fibres developed the interesting fact that the cerebral fibres controlled the contraction of the basement membrane, while the sympathetic fibres, when excited, caused an increase in size of the secreting cells. This dilatation of the gland-cells, when stimulated through the sympathetic, he explains as a passive phenomenon; that is, the result of a process of imbibition of liquid by the cells. If something of this same sort, with reference to the distribution of the cerebral and sympathetic fibres, could be established for the salivary glands, it might give a point of support upon which to base a theory as to the action of the secreting or transudatory fibres as opposed to the trophic fibres, which are assumed to be present in these glands. The author refrains, naturally, from giving any general application to this discovery until it can be shown to be commonly true for the glandular organs. He gives some of the results of a histological study of these glands, but the point of most physiological interest, namely, the anatomical connection between the nerve-fibres and the cells, he was not able to make out. Though he watched some of the glands uninterruptedly for hours under the microscope, he was never able to observe that the granules in the cells showed any increase or diminution in number or size, nor could he see that any portion of the cell was constricted off to form the secretion. The one morphological change in the gland-cells which was conspicuous was the appearance and disappearance of vacuoles. These might come into view suddenly as clear spots, as though caused by the disappearance of a dark granule; the clear spots afterward enlarged rapidly, and might remain a long time unchanged or might again disappear by contraction of the margins. But neither the gland movements nor the secretion seemed to have any direct connection with the vacuoles or with the protoplasmic granules. In other glands the granules are supposed to represent the preliminary material from which the specific element of the secretion is made, so that one may speak of them as zymogen granules. The observations of Drasch seem to show that this theory cannot be applied at once to all glands, as one might otherwise suppose from the work done upon the digestive glands.

MacMunn$^{178}_{v.10,p.71}$ makes another contribution to the difficult and complicated subject of urine pigments. In previous papers he has described three urinary pigments: what he calls normal urobilin, found in healthy urine; pathological or febrile urobilin, found in febrile urine and of a darker color; and urohæmatoporphyrin, found in the urine of rheumatic fever. With reference to the normal urobilin, he no longer believes in the generally-accepted view that it is identical with hydrobilirubin and is formed in the intestines by the action of nascent hydrogen on the bilirubin, whence it is absorbed into the blood and eliminated through the kidneys. On the contrary, he thinks it is produced normally in the tissues at large by the action of nascent hydrogen on hæmatin.

In the urine it is present chiefly as a colorless chromogen or reduction product, in consequence of the action in the bladder of certain reducing substances which are known to be present in the urine. Pathological urobilin, on the other hand, he traces in part to the bile-pigments and in part to the hæmoglobin and histohæmatins of the food. These latter pigments are partially metabolized and absorbed while in the intestines, and are partially changed to stercobilin, which is afterward eliminated in the fæces under normal conditions. But under certain pathological conditions the stercobilin is absorbed and excreted in the urine as pathological urobilin. Finally, the urohæmatoporphyrin of rheumatic urine is not of biliary origin. He supposes that, while under healthy conditions the liver and other blood-metabolizing organs are able to pick out all the effete pigment material from the blood, under abnormal conditions the amount of this material is so great that these organs can no longer handle it properly, so that it appears in the urine. Urohæmatoporphyrin has possibly some such origin. It is formed, in all probability, in the muscles in acute rheumatism in large quantities, and thence gets into the urine. So, in cirrhosis of the liver and in Addison's disease, it may escape into the urine. He gives, in connection with this paper, an interesting diagram to illustrate his views with reference to the origin and relationship of the various pigments derived from hæmoglobin, or, rather, from hæmatin, on the one hand, and from the bile-pigments, on the other.

DIGESTION.

Hofmeister[278, Feb. 21] attempts to determine upon dogs the limit to which sugar can be taken in the food and assimilated, the limit being determined by the appearance of sugar in the urine. He finds that all the forms of sugar which he used will cause glycosuria when taken in certain quantities. The limit of assimilation for the same kind of sugar and for the same individual remained practically constant. But for the same individual, and different sorts of sugar, he discovered that glycosuria was most easily produced by galactose and lactose, with much more difficulty by dextrose, levulose, and cane-sugar. It is rather surprising that the tissues of the body are not able to assimilate milk-sugar as readily as dextrose or cane-sugar. The ease with which milk-sugar leads to glycosuria indicates a possible danger from keeping a patient on a milk diet.

One of the interesting conclusions of Heidenhain's work upon the physiology and histology of the intestinal mucous membrane (see ANNUAL, 1889) was that, under ordinary circumstances, the sugar, along with the water, is absorbed by the blood-vessels of the villi and not by the lacteals. The reason for this is that the blood-capillaries lie just under the epithelial layer, and the slow stream of water which enters the villus is absorbed through them before it can reach the central lacteal. In a subsequent paper, by one of his students, Ginsberg,[246, v.44,p.306] an effort is made to show that when a great quantity of water is taken into the intestine along with the sugar, such that the blood-capillaries cannot absorb it all, then some of the water and sugar will be absorbed through the lacteal. The experiments were made upon rabbits and dogs. The lymph was obtained from a fistula placed in the thoracic duct at its junction with the vein. In animals kept upon their ordinary diet the sugar contents of the blood and the chyle were found to be quite uniform. But when a solution of sugar, in a large bulk of water, was injected into the intestines, not only was the percentage of sugar in the blood increased, but in the lymph also. In the dog a complete series of experiments could be made upon one animal. A specimen of blood and lymph was taken and analyzed for sugar before and after injection of the sugar into the intestines. It seems certain, then, under the proper conditions, namely, the injection of a large bulk of water, that the blood-capillaries are not able to absorb all the water and sugar, and a part, therefore, is taken up directly by the lymphatics.

Southall and Haycraft[277, Ap.] record the fact that in the stomach of the pig a diastatic ferment is formed capable of converting starch to sugar. The activity of this ferment was destroyed by an acidity of 0.1 per cent. free HCl; nevertheless, the gastric juice collected from the stomach gave a diastatic action upon starch. The authors explain this by assuming that the acidity of the stomach in the pig is due to organic acids. The importance of the observation is rather lessened by the statement that the diastatic ferment is not generally present, even among the pigs.

It is generally stated and accepted that the stomach takes no part in the digestion or absorption of fat. Klemperer and Scheurlen[114, B.15,H.4] have undertaken to put the statement to the test of accurate experiment. Their method was as follows: The animal was starved for twenty-four hours before the experiment, and the stomach was then washed out thoroughly with water. The abdomen was opened and the pyloric end of the stomach was securely ligated. A loose ligature was also placed around the œsophagus at the cardiac orifice. A given amount of fat (oil), carefully weighed, was now injected into the stomach by means of a pump; the cardiac ligature was tightened, and the animal was left to itself for three or four hours. At the end of that time it was killed, and the stomach contents were analyzed. The results of their analysis show that neither fats nor free fatty acids are absorbed in the stomach. But it was found that a certain portion of the neutral fat was broken up in the stomach to form free fatty acids, the amount of the latter being usually from 1 to 2 per cent. A part of this action may have been caused by the presence of bacteria, but control experiments convinced them that it was chiefly owing to the action of the mucous membrane of the stomach itself.

The much-discussed question of the mechanism of the absorption of fat from the intestines has been the subject of at least two contributions during the year. Le Marinel,[276, June 20] experimented upon a variety of animals,—frogs, rats, rabbits, pigeons, etc. In the frogs, he fed them with olive-oil, and at different times after the ingestion the animals were killed; the intestines were fixed with Flemming's solution and studied in section. He found the fat-globules, stained dark by the osmic acid, only in the columnar epithelial cells, never in the lymph-corpuscles. He states that when the frog was killed, a short time after the injection of the oil, the dark coloration was confined to the striated borders of the cells, the dark granules lying in the small canaliculi (?) of the border. In the other animals used he often found no evidence at all of a direct absorption of fat-droplets, and in the best cases the amount of fat in the epithelial cells was comparatively scanty. His conclusion from the work is, that when the fat is absorbed directly as fat it is taken up or ingested always by the epithelial cells, and not by the leucocytes of the stroma of the villus. But, in his opinion, only a small portion of the fat is absorbed in this way. Under normal conditions, most of the fat is transformed to some soluble compound and absorbed, though he can throw no light on the nature of this compound.

The second and more thorough paper is by Gruenhagen.[246, v.44, p.535] His experiments were made upon the isolated intestines. A frog was taken which had been starved for some time; the stomach was cut away as far as the pyloric end, the gall-bladder was opened, and the bile sucked up into a small pipette, which was then inserted into the small intestine and the bile forced gently in. With the same pipette some oil, milk, or other substance to be experimented upon was also blown into the intestine. Finally, a small portion of the intestine was isolated by ligatures, excised, and kept in a moist chamber for a number of hours. At the end of a certain period—changed, of course, in the different experiments—the piece of intestine was thrown into Flemming's solution, afterward imbedded in paraffine and sectioned. Microscopic examination proved that the emulsified fat is absorbed directly into the epithelial cells, those with striated borders, and never by the interepithelial leucocytes. So many recent papers have agreed upon this point that it may be accepted now without any hesitation. In order to determine whether this absorption is mechanical, and would happen to any finely-divided particles introduced into the intestines, experiments were made in which India ink rubbed down in salt-solution or carmine was used in place of the oil. In both cases it was found that the epithelial cells contained globules stained dark, and which, therefore, were to be considered either as fat-drops or, in the first case, as India-ink granules, but carmine granules were never found. This led him to examine the intestine of a winter-frog starved for some time, into which nothing had been injected and which was preserved in Flemming's solution, as before. To his surprise, he found in this also dark globules in the epithelial cells to exactly the same extent and in the same position as after injection of India ink. In both cases the dark globules of fat were found only in the cells at the bottom of the folds of the intestinal membrane, never in those on the summit of the folds. He interprets this to mean that a certain amount of fat is stored in the epithelial cells for a time, at least, after winter starvation has begun. The amount of fat in the epithelial cells after the injection of fat into the intestine was very much in excess of that met with in the starved animal, and was found in all the epithelial cells, without exception, whether at the bottom or on the summit of the folds. The value, then, of his experiments in demonstrating the mechanism of the absorption of fat is not affected by his discovery of the constant presence of fat in some of the epithelial cells of the small intestine.

Copeman and Winston$^{178}_{v.10,p.314}$ report a number of very interesting observations made upon the bile of a woman having a permanent biliary fistula. A large calculus in the common bile-duct had caused a strong distention of the gall-bladder, which was relieved by a surgical operation laying open the bladder. The wound healed, except at one point, and through this the bile was discharged. It was collected for purposes of experiment by means of a cannula inserted into the opening. For nearly two months the patient did well, had a good appetite, did not suffer from constipation, and at one time actually gained in weight. Death resulted from an attempt to again open the common duct into the intestine. The interesting physiological points which came out of this case were these: The amount of bile secreted by the liver in twenty-four hours was about 27 ounces (839.8 grammes), the woman weighing 95 pounds (43 kilogrammes), or about 4 ounces (125 grammes) to every 14 pounds (6.3 kilogrammes) of body-weight. For a man, then, of average weight, 140 pounds (63.6 kilogrammes), the daily flow would be about 40 ounces (1244 grammes). The flow of bile was not continuous, but jerky, as though brought about by peristaltic contractions of the larger bile-ducts. The rate of flow showed a variation, also, with the meals. About one or two hours after a meal there was a distinct increase in the secretion.

The fresh bile, as they obtained it, was always of an olive-green color, as in the herbivora; whereas the general belief has been that human bile, like that of the carnivora, is of a yellowish color, from the presence of bilirubin. They state that in their case the bile and the liver had every indication of being perfectly normal. The yellow color of the human bile, as one meets it in ordinary post-mortems, they explain by supposing that after death the biliverdin suffers a reduction to bilirubin. To support this view they quote two examinations made upon monkeys. In one monkey the bile was examined immediately after death and found to be green, while in another of the same species, in which the gall-bladder was not opened until a number of hours after death, the bile was yellowish. With reference to the function of the bile in digestion, they found that their patient did not suffer from constipation, in spite of the fact that no bile at all was emptied into the intestine. The normal purgative action of the bile is thus rendered doubtful.

The only effect upon the digestion, which seemed to follow from the removal of the bile, was that the fats were not so completely absorbed as under normal conditions; that is, a larger percentage of fat was passed in the fæces. The recent work of Rohmann, of Voit, and others, upon dogs, to show the physiological value of bile in digestion (see ANNUAL, 1888), have led them to the same conclusion. To determine the antiseptic action of the bile they made a number of culture experiments with various forms of bacteria, using a nutritive gelatin mixed with bile. The general outcome was that the bile exerts no distinct antiseptic action, though to some extent its presence seemed to hinder putrefactive changes. Another very interesting observation was that the urine of the patient was colored with urobilin, as in a normal person. This, of course, contradicts the usual theory that the urobilin arises from the reduction of the bile-pigment in the intestine, the urobilin being afterward absorbed into the blood and thence excreted by the kidney. This fact confirms, therefore, the supposition of MacMunn$^{178}_{\text{v.10,p.71}}$ that the urobilin takes its origin from the reduction of the hæmatin in the body at large.

Lukjanow$^{88}_{\text{v.13,p.[illegible]}}$ has made a number of analyses of the organs in pigeons to determine the proportions of water and solids in the tissues of the starved animal as compared with the normal. His experiments were made upon 20 normal and 20 starved pigeons, and the following organs were analyzed: Blood, brain, thoracic muscles (right side), liver, pancreas, duodenal walls, spleen, kidneys, heart, lungs, thigh-muscles, and bone of right side. The results are presented in the form of two tables, one for the normal animal and one for the starved. The general facts of interest shown in the tables are these: The change in the different organs in the relative amounts of water and solids is comparatively slight, even when the total loss of weight reaches 34 per cent. and the animal has had no water nor solid food for one hundred and fifty-three hours. In some of the organs, namely, the heart-muscle, kidneys, thoracic muscles, intestinal tract, blood, brain, and lungs, the relative proportions of water and solids remained unchanged. In others there was a tendency to an increase in the proportion of water, *e.g.*, in the thigh-muscles and bone. In others the proportion of water was diminished, as in the spleen, pancreas, liver. With reference to the loss in weight of the organ, it was found that the relative weight of the organ to the body in the starved animal, compared with the normal, showed an increase of 28.7 per cent. for the heart, 55.3 per cent. for the brain, and 66.1 per cent. for the thigh-bones. On the other hand, the relative weight of the pancreas in the starved animal showed a decrease of 30.8 per cent., and of the spleen 58.1 per cent.

MISCELLANEOUS.

The function of the thyroid bodies has been the subject of active investigation within the last few years. Some of the first experiments from which the renewal of interest in these bodies dates are recorded in the ANNUAL, 1888 and 1889. The subject is being studied by surgeons and pathologists, as well as by the physiologist, but it cannot be said that any very definite results have yet come out of the work except a close study of the symptoms following the excision. Munk$^{1036}_{\text{No.40,'88}}$ believes that the thyroids are unimportant bodies, and that their removal in itself can have no injurious effect upon the organism. The fatal termination of the operation in certain animals, the clonic spasms and fibrillar contractions of the muscles, the disturbances of respiration, the apathy, and other symptoms which follow upon their removal, he attributes, in the first place, to the stimulation of the nerves in the neighborhood of the gland, especially those supplying its sheath. These nerves are stimulated continually by the inflammation in the wound and lead to disturbances of respiration and circulation. The respiratory movements, at first quickened, afterward become slower; a dyspnœic condition ensues, and the nourishment of the central nervous system suffers. In consequence of this last effect tetanic contractions result, and the animal may die in these spasms from mechanical hindrance to the respirations. The lethargy shown by the animal after the operation he assumes to be voluntary on the part of the animal, since it is conscious that any muscular movement may bring on the spasms. When the capsule and surrounding tissue of the uninjured glands are set into inflammation by the injection of a little croton-oil (croton-oil 1 part, olive-oil 50 parts) Munk asserts that symptoms appear similar to those following complete extirpation of the thyroids. Drobnick$^{273}_{\text{v.25,p.136}}$ attempts to explain the effect of removing the glands in a somewhat similar way: the symptoms that follow are not the result of the loss of any function belonging to the thyroids, but are reflex phenomena arising from the wound. Both authors agree with previous observers in stating that removal on one side only is not followed by the usual symptoms; in fact, has little or no apparent effect upon the animal.

A series of older experiments, made by Carle,[589 P. III, W] seems to contradict directly the essential points in the theory of Munk and Drobnick. He cut all the nerves going to the glands, but, outside of some disturbances of deglutition, no serious symptoms followed the operation. Like the others, he found that unilateral extirpation was without effect, while removal on both sides was fatal in the majority of cases. The exceptional cases in which excision of both thyroids does not prove fatal may be explained, possibly, by the occurrence of accessory thyroids. Carle found them in many animals in connection with the trachea, or beneath the pericardium of the heart,—in positions, therefore, in which they might easily be overlooked. So, Ewald[4 Ap. II] states that in many cases he found accessory thyroids upon the heart. He noticed that removal of both thyroids in young pups was quickly fatal, the symptoms being the same as those so frequently described for the adult. He lays stress upon one result of the operation which seems to have been unnoticed, namely, the foul odor of the breath, which becomes apparent even before the appetite begins to fail. Ewald objects very strongly to Munk's explanation of the fatal result of removal of the thyroids,—that is, the stimulation of the nerves in the inflamed wound. He refers to some experiments of his own bearing upon the flow of blood in the carotid, which necessitated the making of a wide and deep wound in the dog's neck in the immediate region of the thyroids. A number of the animals died from the operation, but those that survived showed none of the characteristic symptoms following excision of the thyroids. Experiments made upon dogs with enlarged thyroids showed that here, as in the normal animal, removal on one side was without effect, while removal on both sides was followed by the death of the animal with the usual symptoms. Schultze and Schwartz state that removal of both glands is not followed necessarily by an early death, since they were able to keep some of the animals as long as four months. It is possible, of course, in these cases, that accessory thyroids existed; the authors do not seem to have taken this possibility into account. They discovered, moreover, that after the removal of the thyroids, as in man after excision of goitres, there was a marked increase in the irritability of the peripheral nerves toward electrical stimuli. Weil[84, Apr. 6] discovered that two animals which survived the apparently-complete removal of both thyroids were found, on careful examination, to have some remnants of perfectly-normal thyroid left. After cutting out these remnants the animals died in a short time with the usual symptoms. Neither Weil nor Schultze and Schwartz accept the explanation of the effects of removal given by Munk. Weil believes that the thyroids have some important relation to the nourishment of the central nervous system. Michaelsen[246, v. 45, p. [illegible]] turned his attention to the effect of the removal of the thyroids upon the gases of the blood. He found that there was an undoubted increase in the carbon dioxide given off, and apparently also in the oxygen consumed, though he seems to be less positive upon this latter point. Like the others, he states that death results almost constantly after the removal of both glands, and that, whenever recovery takes place, it is to be accounted for by the presence of accessory glands. The inflammation of the wound can only be looked upon, in his opinion, as favoring the development of the paroxysms.

In the ANNUAL of 1889 an account was given of some experiments by Dastre and Loye upon the injection of salt-solution into the veins of rabbits. They found that an enormous quantity could be injected without injury, provided only that the injection was not made too rapidly. The limit with the rabbit seemed to be 3 cubic centimetres (48 minims) of the salt-solution (0.7 per cent.) per minute to each kilogramme (2 lbs.) of animal. In a second paper, appearing during the present year,[410, Jan., Apr.] they give an account of similar experiments upon dogs. As in the rabbit, they found that they might inject large quantities of the salt-solution, quadruple the volume of blood, or more, without any injury to the animal. The conditions under which this injection is possible were more carefully investigated. The pressure of injection and the temperature of the liquid should be kept as nearly constant as possible, the temperature being naturally that of the body. The greatest rapidity of injection possible in the dog is much less than in the rabbit, being only 0.7 gramme (10 grains) per minute and 1 kilogramme (2 lbs.) of animal. It is rather curious that in young pups this experiment was not successful, the young animals apparently not being able to regulate the quantity of water in the tissues. The authors compare this want of the power of regulation to the lack of heat-regulating power in the young. So in anæsthetized animals (chloroform) the regulation was impossible, no matter how slow the injection was made. The kidneys remained nearly impermeable. With reference to the regulation of the new amount of liquid, they state that, after new liquid has been injected to about the quantity of the blood, the secretion through the kidney is so increased as to run just parallel to the injection, and the further accumulation of the saline liquid in the organism is prevented. Of the portion of the injected liquid which remains in the body, only a small part actually remains in the blood; the greater portion is stored up in the liver, the lymphatics, and serous cavities, etc. After the injection has ceased this stored-up liquid passes slowly back into the blood and thence is excreted. They found the mass of the blood might be increased by as much as one-eighth of its volume without thereby causing any increase in blood-pressure. If the kidneys alone happen to be insufficient to secrete the excess of liquid as it is poured into the veins, then the submaxillary glands, the intestines, and even the lungs, may act as supplementary organs to make the regulation perfect. After the secretion of the excess through the kidneys has begun, the liquid secreted no longer resembles ordinary urine, but is almost exactly similar to the liquid injected. They concluded, therefore, that the liquid secreted is the same as that injected,—that the latter takes from the organism nothing more than some soluble products and, possibly, some harmful substances. On the basis of this last supposition, they suggest that their method of washing or irrigating the tissues of the body may be of decided therapeutical value in the case of diseases in which it is suspected that soluble toxic products are present in the tissues. They give, however, no experiments to make this therapeutical application of their experiments seem more than a mere possibility.

ANATOMY.

BY WILLIAM S. FORBES, M.D.,

PHILADELPHIA.

OSSEOUS SYSTEM.

Measurements of Long Bones and Estimation of Height.—Thomas Dwight[99 Sept. 19] states that Etienne Rollet[479 V. 107, No. 34] has given a great deal of attention to the long bones, particularly in relation to the height of individuals. He gives the proportion of the different bones to the height in both men and women, dividing the individuals into four groups according to height. If we assume that the number of subjects was divided as equally as possible, which is unlikely, each group would consist of only 12 or 13 individuals, which is insufficient. He gives in the third part of his work five methods of estimating the height of an individual from the long bones, or from one of them. The first method, to which he gives the preference, is by means of the tables which he has made, in which both males and females are divided into four groups according to height, and the average length of the long bones of each group is given. All that is necessary, knowing the length of a bone, is to find the group in which the length of the corresponding bone most nearly approaches it. We take the average height of that group, and, by a simple application of the rule of three, find the height that is wanting. Thus, the length of the given femur being L, the height of its late owner being X, the nearest average femur being A, and the height of that group H, we have $X = H \times L \div A$.[250 Mar.] Better thus: $X = \frac{H \times L}{A}$

The second method is essentially similar. He gives the table of height of individuals 2 centimetres apart, 15 of men and 17 of women, with the length (we presume the average length, as found in the author's observations) of the bones opposite. Knowing, then, the length of a bone, we look for it in the table. If we wish to find it precisely, we take the height in the same line; if it is not found precisely, we have again recourse to the rule of three.

The third method appears to be to compare the length of the known bone with that of the mean femur, and, knowing the mean height, to go through the same process again. He gives a table of mean length of the bone for both men and women.

The fourth is still by the rule of three, and is done by tables showing the proportions of the different bones to the height, the latter being 100.

The fifth method is a purely arbitrary one, which is, at all events, much less complicated than Bedloe's, which is described in the ANNUAL of last year, It consists simply in multiplying the length of the known bone by the corresponding figures, as shown in the following table:—

	Femur.	Tibia.	Fibula.	Humerus.	Radius.	Ulna.
Male	3.66	4.53	4.58	5.06	6.86	6.41
Female . . .	3.71	4.61	4.66	5.22	7.16	6.66

The Architecture of the Foot.—In speaking of W. Rasumowski's study[586 N.13] of the internal structure of the bones of the foot, he mentions his quite original manner of making his sections. His method consists in freezing the whole foot and cutting with a saw slices 2 or 3 millimetres in thickness. These are first cleansed by a stream of water, and then put for several days into strong alcohol, after which they are made transparent by turpentine or, better still, oil of cloves. The soft parts are rendered so transparent that one tissue is hardly to be distinguished from another, but the structure of the spongiosa is said to show many details not seen in sections not treated in this way. One of the features which the illustration at once makes evident is that each bone cannot be considered as a whole in itself, but that some, at least, of its lamellæ belong to systems extending beyond its confines. Another is that, in some cases, the fibres of the interosseous ligaments appear to be connecting links between systems of plates in separate bones. The illustrations, unfortunately, are from drawings, and do not therefore carry the conviction which follows photography, and which would be particularly welcome in this question of possibility of direct continuity between fibrous tissue and bony plates. There is the well-known system of struts and ties. Antero-posterior arches, with one pier in the heel-bone, diverge through the five metatarsal bones. The lines of these arches are, however, not continuous, but are interrupted at the summit, those of the three inner toes in the astragalus and those of the two outer in the os calcis. Frontal sections show transverse arches in the front part of the tarsus. These are said to be connected by a system of ties, partly of bony plates, partly of ligaments; and in this connection we must repeat that we wish the illustrations were less diagrammatic. A frontal section through the astragalus and os calcis shows a series of plates in the main vertical, but with a tendency to incline inward in their course through the lower bone.[384, B.6, H.6]

Point in the Anatomy of the First Cuneiform Bone.—Hartmann and Mordret[7, N.4] have made a curious discovery concerning the first cuneiform bone, which is situated between the scaphoid and the metatarsal bone of the great toe, viz., that it shows signs in many cases of a tendency to divide into two. They state that in the majority of cases there is a tendency to a contraction of the breadth at the middle of the anterior surface, and we must own that we are not clear that, so far, they have discovered anything that was not known before. Gray says that its surface is reniform; that is, it is constricted to one side. Their next step, however, brings us to something new, and which one is surprised should have been overlooked. It is that, in 20 per cent. of cases, the anterior surface is distinctly divided into two by a minute furrow, as if drawn by a needle in the middle and growing larger at its ends. They frequently found a delicate band of areolar tissue attached to it; when this exists, there is a corresponding minute ridge on the back of the metatarsal bone, far too small to be of any surgical importance. In 2 per cent. of the cases the cuneiform was completely split into two bones, one above the other, presenting opposed articular surfaces, except at the outer angle, where there is an interosseous ligament. When the separation is complete the anterior surface of the scaphoid shows four, instead of three, articular facets.

These observations were made on 300 feet. The authors found that the peculiarities were symmetrical. The division of this bone into two is already known as a rare anomaly. Le Dentu has thought that it had two centres of ossification, which united at the fourth year.

The Occasional Eighth True Rib in Man and its Relation to Right-handedness.—D. J. Cunningham[277 Oct.] states that when the eighth rib occurs it is usually a true rib. Our knowledge of the conditions under which this takes place, and also of its frequency of occurrence, is by no means satisfactory. He examined 70 subjects,—42 females and 21 males, and 7 in which the sex was not ascertained. He says, in regard to the latter, that the absence of the record as to the sex is not due to any fault of his assistant, inasmuch as the specimens were dried lecture preparations. In these 70 cases the eighth true rib occurred fourteen times, or, in other words, in 20 per cent. It occurred seven times in the females and seven times in the males; but from this we must not infer that the anomaly is equally common in the two sexes, seeing that the number of females examined was twice as great as that of the males. Different forms of attachments of the eighth costal cartilage to the sternum were observed: first, in certain cases the cartilage articulated directly with the lower end of the gladiolus; second, in other instances its extremity was placed in front of the ensiform cartilage and was bound to this by ligamentous bands; third, in certain of those cases in which the condition was bilateral the two cartilages of opposite sides articulated with each other in front of the ziphi-sternum, and were bound to each other and to the sternum by ligamentous bands; fourth, in one case there was a small, narrow, separate piece of cartilage which was joined by one extremity by fibrous tissue to the cartilage of the eighth rib, and by the other to the lower end of the sternum. In 5 of the 14 cases observed—viz., among 4 males and in 1 female—there was an acephalous fœtus. The anomaly was bilateral and symmetrical. In the remaining 9 cases it was unilateral, and, in connection with these, there is a point of some interest and importance, viz., that in all of them, with one exception, the anomaly appeared on the right side. It is true that the above statistics are not based upon a very large number of cases, but some of the points which they indicate are so pronounced that I think we may safely discuss them with a view to testing their significance. The points particularly referred to are, first, the preference which the anomaly, more especially in its bilateral form, shows for the male, and, second, the very decided preference which the unilateral form shows for the right side. Can any reasonable explanation be offered for these curious facts? Cunningham thinks that it is possible that they may have something to do with right-handedness. There can be no doubt that the extension forward of the eighth costal cartilage, so that it obtains a hold upon the sternum, to some extent will strengthen the frame-work of the chest and increase the stability of the basal support of the right upper limb. The greater frequency of the eighth true rib in the male may simply be due to the fact that in him a greater working-power is required of the upper limb.

JOINTS.

The Development of Diarthrodial Joints in Birds and Mammals.—David Hepburn,[277 July] in speaking of the particular importance of pathological conditions which affect joints and necessitate surgical interference, has led to a careful study of the normal and morbid anatomy, both macroscopically and microscopically. After dwelling on the general literature of the subject, he draws his conclusions as follows: 1. The bony matrices and the articular disk possess tissue continuity, and are derivatives of a common blastema, of which the articular disk is at first the undifferentiated form. 2. The articular disk may conduct itself as follows: (*a*) It may develop in a plate of cartilage and form a synchondrosis, *i.e.*, the articulation between the basi-occipital and the basi-sphenoidal bones; (*b*) it may differentiate into fibrous tissue and form a syndesmosis or synarthrosis; (*c*) it may partly cleave and partly form a joint-cavity. 3. The joint-cavity appears within the articular disk at a period when the process of chondrification is at some distance from the cavity. 4. If the cavity remain of small size and the surrounding articular disk develops into fibrous tissue, an amphiarthrosis is formed, *i.e.*, the joint between the vertebral bodies. (This is especially well seen in some cetacea, and probably the epiphysial plates on the bodies of the vertebræ are also derived from the articular disk.) 5. The cavity may enlarge and form a diarthrosis. 6. When the joint cavity is single we have a simple diarthrosis. When the cleft is single, but does not extend across the axis of the disk, an interarticular ligament is formed. When there are two cavities we have a diarthrosis with an interposed meniscus. When the two clefts unite in the centre we have the condition seen in an incomplete meniscus. 7. The proximal and distal segments of the articular disk develop into the articular cartilages of the joint, and probably form part, if not all, of the epiphysial ends of the bones. 8. The circumference of the articular disk develops into the capsule of the joint. 9. Interarticular fibro-cartilages and ligaments are derived from the articular disk as the result of the modifications of the joint-cavity. 10. The cells lining the joint-cavity have a double fate: those in relation to the ligamentous structures and those within the reach of a direct blood-supply become specialized into a synovial membrane; those applied to the articular cartilage are present, in the bird, at the period of hatching, but in the case of mammals they have undergone degeneration; probably in both cases they disappear as the result of friction. Pathology offers corroborative evidence of the derivations of the articular disk, for the structures enumerated as being developed from it are simultaneously affected by pathological conditions.

THE NATURE OF LIGAMENTS.

J. Bland Sutton[277 Jan.] has studied the nature of ligaments with special reference to the vocal cords and hyo-epiglottideus muscle. Critical dissection of the thyro-arytenoid ligaments shows that, instead of being attached exclusively to the thyroid cartilage, they become connected with the pedicle or base of the epiglottis. Imbedded in these ligaments we find the cuneiform cartilages (Wrisberg's), and, on tracing them backward, the fibrous bands will be found to send, from their points of attachment to the arytenoid, accessory slips to the cornicula laryngis (Santorini's). After comparing, by examination, the laryngeal cartilages in the porpoise, man, and the horse, he tabulates his conclusions in reference to the study of the vocal cords and the higher epiglottideus muscles as follows: 1. The true vocal cords, or the inferior thyro-arytenoid ligaments, arise from the tendinous metamorphosis of those fibres of the thyro-arytenoid muscle subjacent to the laryngeal mucous membrane. 2. The false vocal cords, or the superior thyro-arytenoid ligaments, represent, with the cuneiform cartilages, in a degenerate manner, an old communication between the epiglottis and the corniculum laryngis; the corniculum is in itself a vestigeal structure in most mammals. 3. The hyo-epiglottidean ligament in the human subject is the fibrous representative of a well-formed muscle in many mammals.

MUSCLE.

Pectoral Muscles.—Windle,$^{1068}_{v.46,p.90}$ in speaking of the pectoral group of muscles, considers them as consisting of three sectors: from before backward, anterior, or manubrial, supplied by the external anterior thoracic nerve; middle, or gladiolar, supplied by the internal thoracic nerve; posterior, or abdominal, supplied by the lateral thoracic nerves. This segmentation is of primary importance, as shown by the nerve-supply. Each of these segments may be laminated, so that there may be a deep manubrial, a deep gladiolar or costal, and a deep abdominal. The lamination is of secondary importance. The relations and the connections of these are very variable among mammals. The following is suggested as the morphology of the group in man: The superficial manubrial, clavicular and anterior part of pectoralis major, sometimes separated from the remainder of the muscle; deep manubrial, occasionally present as the pectoralis minimus of Wenzel Gruber; gladiolar, posterior, non-reflected part of the pectoralis major; costal, double—(1) pectoralis minor, (2) deep, reflected part of pectoralis major; abdominal, occasionally present as pectoralis quartus, or some of the forms of achselbogen.

Supra-clavicular Muscle.—R. W. Reid$^{277}_{Ap.}$ puts on record the occurrence of a somewhat rare anomaly. This supra-clavicular muscle was found on the left side of a fairly-muscular male subject. It arose, by short, flat, and tendinous fibres, from the outer border of the median tendon of the sterno-mastoid and the fascia lata, over the immediately adjacent fibres of origin of the pectoralis major, and was inserted by fleshy fibres into the inner inch of the upper surface of the fleshy portion of the clavicle, and, by short radiating aponeurotic fibres, into the deep cervical fascia just above that part of the bone. The muscle was about 4½ inches long, flat and tendinous at each end, and fleshy between. The fleshy part was somewhat compressed from before backward, and radiated slightly from its sternal toward its acromial extremity. The inner end of the fleshy part measured, from above downward, ½ inch; on the outer end, 1 inch. The greatest thickness from before backward was ½ inch. As regards its relations, it lay upon anterior ligament of the sterno-clavicular joint, the anterior surface of the clavicular origin of the pectoralis major, the upper part of the interval between the pectoralis major and deltoid, the outer ¾ inch of the anterior surface of the prismatic portion, and the inner inch of the flattened portion of the clavicle. The large branch of the supraclavicular nerve passed beneath it and sent a good-sized filament into its deep surface.

CIRCULATORY SYSTEM.

Construction of the Ventricles in the Mammalian Heart.—Macdonald Brown $\frac{277}{\text{Jan.}}$ makes some interesting remarks in regard to the so-called moderator-band of King in the right ventricle. Out of 100 hearts examined he never found it absent once, although in 15 cases its septal attachment was so low down as to give it the appearance of an ordinary trabecula. In every case it was a muscular band, arising, in common with the anterior papillary muscle, near or at its base. It passes obliquely upward and inward, and becomes attached to about the middle of the septum, nearer its anterior than its posterior aspect. Its size varies much. He has found it 1½ inches in length, and almost as thick as the little finger; at other times, attenuated and short. Again, its septal attachment may be simple or radiating, but, while its septal end thus varies both as regards character and position, its connection with the anterior muscle is constant. A second small band sometimes exists, attached to the ventricular wall near the apex, and which either passes across the septum independently, or, more commonly, after a short distance, blends with the larger one. In mammals this moderator-band is almost invariably present. Brown found that the best method of demonstrating it is to open the ventricle by a triangular flap, made by cutting transversely near the auricle and vertically near the free margin of the ventricle. Its true position is also well seen by cutting off the right auricle and dilating the tricuspid orifice by a small incision, when the condition of the parts can be viewed from above. Brown believes that the band acts indirectly as a moderator, and that through the anterior papillary muscle. He is also of the opinion that a well-formed moderator-band will serve largely, by its contraction, to direct the blood-stream toward the pulmonary orifice. In many specimens of dilated right heart, in which only the initial stage of the lesion had been reached, he found that the dilatation existed only posterior to the muscle and its accessory band; in a more advanced stage the cavity was dilated almost equally.

VISCERA.

Anatomy of the Prostate.—Joseph Griffith,[277 Apr.] rightly thinking that our knowledge of the prostate is unsatisfactory, has studied it anew. He finds that the third lobe is almost always present, but that, when it occurs, it is one of the original parts of the prostate, or, at least, one that appears early, and is not merely an extension of the other two. He referred, some years ago, to the reports of Harrison, of Liverpool, on the prostate muscle, in which he mentioned that the organ is essentially a muscular one. Griffith, on the contrary, believes that it is essentially granular, and states his conclusions: First, the third or median lobe exists, in many instances, as a well-defined portion of the gland at puberty and adult life, *i.e.*, the period before enlargement of the prostate occurs; but in other instances it is very small or entirely absent. Second, this part, or lobe, possesses ducts of its own, which open upon the parts of the hinder wall of the prostatic urethra, which extends from the visceral orifice to the verumontanum. Third, this part, or lobe, also develops separately from the part of the urethra just mentioned, in the same way as the lateral lobes do from the part of the urethra on each side of the verumontanum, and it is not the result of an extension backward of the gland-tissue from the lateral lobes into the interval between the vasa deferentia and the neck of the bladder. Fourth, the whole gland is peculiar in this particular,—that the ducts are short and form mere channels in the stroma, being destitute of any special coats except the layer of epithelium lining them; and that the muscle-tissue of the prostate is so arranged around the termination of the gland-tubules which form the secreting parts of the muscle that when it contracts it is able to act as an efficient expulsor along the whole course of the tubules. Fifth, this arrangement of the muscle in the prostate is developed in relation to the function of the gland, and thus it is that the secretion accumulated in the tubules can be completely expelled into the urethra at once, or, at least, in a short time. Sixth, the muscle element of the prostate is derived from the outer circular non-striped muscular coat of the prostatic urethra, this coat being continuous with the circular coat of the bladder; therefore, the muscle element of the prostate is only indirectly continuous with that of the circular coat of the bladder. Seventh, the utriculus masculinus is not, properly speaking, imbedded in the prostate; it forms its distinct structure separate from the prostate, and, as the growth of the prostate greatly exceeds that of the utriculus masculinus, the latter is, in time, covered in, and appears as if imbedded in the former.

NERVOUS SYSTEM.

Experiments in Cranio-cerebral Topography. — William Anderson and George Henry Makins,[277 Ap.] in presenting this very interesting paper before the Anatomical Society of Great Britain and Ireland, in February, 1889, describe their very interesting study of the variations of the course and position of some of the chief cerebral fissures. Now that cerebral surgery has a recognized standing, the importance of an accurate placing of the main features of the motor region is self-evident. Their method is an ingenious one. Their observations were divided into three groups, and their plan may be best described in their own words: "A preliminary series of examinations were conducted with a view to gain certain approximate data as to the relation of the three principal fissures of the cranial walls. Upon the indications so obtained were found a second and larger set of investigations, mainly guided by the experimental punctures made at certain test-points upon the scalp; and, lastly, a number of adult crania of different types, but free from abnormalities of form or development, were submitted to the measurement with a view to determine the range of variation of the principal sutures, eminences, and ridges in their relation to each other, and to certain standard lines drawn upon the surface of the skull." In the first series but one side of the vault of the skull was removed, the dura opened, and the course of the fissures of Sylvius, of Rolando, and the external parieto-occipital determined, and then marked with a colored pencil on the outside of the dura, which had been accurately replaced. The separated portion of the calvaria was then replaced and the head turned so that the mucilage on the dura left its mark on the inside of the skull. The piece of bone was then removed and holes drilled through it along the lines of fissure. The relations of these lines to the sutures and eminences were then carefully noted. From these observations a brain-plan was drawn upon the skull of average dimensions. Provisional points were selected for certain points in the fissures, and three standard lines were drawn on the scalp for their localization. The second series consisted of experiments made from these lines which were drawn on the scalp. Holes were then drilled through certain points in them, and pins thrust through. It was then easy to expose the brain and mark the relation of the punctures to the fissures. The third series consisted of measurements of certain lines on thirty skulls, in order to ascertain the value of the sutures and eminences as guides to regions of the brain. Room will not permit the details of the bony measurements to be given; suffice it to say that most of the points varied considerably. Three, however, are both relatively stable and easily recognized during life, namely, the glabella, the external angular process of the frontal bone, and the external occipital protuberance. It was found that the relations of the convolutions to the surface of the skull and to each other varied "within rather wide limits." The course of the fissures (apart from their relations) was found to be very uncertain. A series of tracings of the fissures of Rolando shows some surprising meanderings. The lines which were chosen for standards are defined as follows: They are, first, the sagittal line from the glabella, at the level of the highest point of the orbital arches, to the external occipital protuberance; second, the frontal line from the mid-point of the sagittal line to the depression immediately in front of the tragus of the ear; and, third, the squamosal line from the most prominent part of the external angular process, at the level of the superior border of the orbit, to the junction of the middle and lower third of the frontal line, and prolonged 1½ inches beyond it. The upper end of the fissure of Rolando was always found between the mid-sagittal point, *i.e.*, the point in the middle of the line and ¾ inch behind it. The distance from the mid-sagittal line bore, however, no constant relation to the length of that line. The lower end was found in the squamosal line, between the point where it cuts the frontal line and a point ¾ inch before it. As already stated, the course of the fissure between these two points was often remarkably irregular. As to the fissure of Sylvius, its point of starting is necessarily rather a vague spot. It is in the squamosal line, between 1⅛ and 1½ inches behind the external angular process. The bifurcation is in the same line, between 1½ and 2 inches from the angular process. The main branch of the fissure follows the squamosal line closely, but it turns up at its end, which is near the parietal eminence. The authors state, however, that a circle 1½ inches in diameter would fail to inclose all its variations. The external parieto-occipital fissure is, on an average, seven-twelfths of the distance from the mid-sagittal point to the occipital protuberance; in other words, near the apex of the lambdoidal suture. Judging from the diagram, there is less variation in its situation than might have been expected.

REFERENCE LIST.

JOURNALS.

1. New York Medical Journal.
2. British Medical Journal.
3. La Semaine Médicale.
4. Berliner klinische Wochenschrift.
5. American Journal of the Medical Sciences.
6. London Lancet.
7. Bulletin de la Société Anatomique.
8. Wiener klinische Wochenschrift.
9. Medical News.
10. Bulletin de l'Académie de Médecine de Paris.
11. Journal of Laryngology.
12. New Orleans Medical and Surgical Journal.
13. Schmidt's Jahrbücher.
14. Le Bulletin Médical.
15. London Practitioner.
16. Dublin Journal of Medical Science.
17. L'Union Médicale.
18. L'Encéphale.
19. Medical and Surgical Reporter.
20. Virchow's Archiv für pathologische Anatomie und Physiologie und für klinische Medicin.
21. St. Petersburger medicinische Wochenschrift.
22. Medical Press and Circular.
23. Annals of Gynæcology.
24. Journal de Médecine de Paris.
25. London Medical Recorder.
26. Provincial Medical Journal.
27. American Journal of Obstetrics.
28. Monatshefte für Praktische Dermatologie.
29. Archiv für Mikroskopische Anatomie.
30. Annali di Ottalmologia.
31. American Medical Digest.
32. Birmingham Medical Review.
33. Bulletin Médical des Vosges.
34. Münchener Medicinische Wochenschrift.
35. Revue Générale de Clinique et de Thérapeutique.
36. Edinburgh Medical Journal.
37. Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx.
38. Asclepiad.
39. Canadian Practitioner.
40. Gaillard's Medical Journal.
41. Deutsche Medizinal-Zeitung.
42. Internationales Centralblatt für Laryngologie, Rhinologie und verwandte Wissenschaften.
43. North Carolina Medical Journal.
44. Southern California Practitioner.
45. Archiv für Dermatologie und Syphilis.
46. Marseille-Médical.
47. Brain.
48. Annales de Gynécologie et d'Obstétrique.
49. British Gynæcological Journal.
50. Centralblatt für Bacteriologie und Parasitenkunde.
51. Archives of Pediatrics.
52. Bulletin de l'Académie Royale de Médecine de Belgique.
53. Cincinnati Lancet-Clinic.
54. Fortschritte der Medicin.
55. Gazette Médicale de Paris.
56. Indiana Medical Journal.
57. Internationale Klinische Rundschau.
58. Zeitschrift für Hygiene.
59. Medical Record.
60. Medical Register.
61. Journal of the American Medical Association.
62. Philadelphia Medical Times.
63. Revue Pratique d'Obstétrique et d'Hygiène de l'Enfance.
64. Medical Abstract.
65. St. Louis Courier of Medicine.
66. Archives of Otology.
67. Bulletin Général de Thérapeutique.
68. Centralblatt für Nervenheilkunde, Psychiatrie und gerichtliche Psychopathologie.
69. Deutsche Medicinische Wochenschrift.
70. Gazette Hebdomadaire des Sciences Médicales de Bordeaux.
71. Illustrirte Monatsschrift der ärztlichen Polytechnik.
72. Kansas City Medical Index.
73. Le Progrès Médical.
74. Memphis Medical Monthly.

75. Neurologisches Centralblatt.
76. Ophthalmic Review.
77. Pacific Medical Journal.
78. Revue générale d'Ophtalmologie.
79. Sanitarian.
80. Therapeutic Gazette.
81. Virginia Medical Monthly.
82. Weekly Medical Review.
83. Zeitschrift für Physiologisches Chemie.
84. Wiener Medizinische Wochenschrift.
85. Texas Courier Record.
86. Southern Practitioner.
87. Revue Médico-Pharmaceutique, Constantinople.
88. Prager Medicinische Wochenschrift.
89. Obstetric Gazette.
90. Medical Chronicle.
91. Revue de Chirurgie.
92. Revue de Médecine.
93. Sanitary Journal.
94. Archives de Neurologie.
95. Archiv für Gynækologie.
96. Annals of Surgery.
97. Breslauer Aerzliche Zeitschrift.
98. Alienist and Neurologist.
99. Boston Medical and Surgical Journal.
100. Gazette des Hôpitaux.
101. International Journal of Surgery.
102. Kansas City Medical Record.
103. La Higiene.
104. Maryland Medical Journal.
105. Northwestern Lancet.
106. Omaha Clinic.
107. Pacific Record of Medicine and Surgery.
108. Revue de Thérapeutique Medico-Chirurgicale.
109. St. Louis Medical and Surgical Journal.
110. Texas Health Journal.
111. Unãio Medico.
112. University Medical Magazine.
113. Wiener Medizinische Presse.
114. Zeitschrift für Klinische Medicin.
115. Western Medical Reporter.
116. Therapeutische Monatshefte.
117. Southern Medical Record.
118. Revue Mensuelle des Maladies de l'Enfance.
119. Polyclinic.
120. Nashville Journal of Medicine and Surgery.
121. Medical Bulletin.
122. L'Union Médicale du Canada.
123. Korrespondenzblatt der aerztlichen Kreis-und Bezirks-Vereine im Königreich Sachsen.
124. International Medical and Surgical Synopsis.
125. Hall's Journal of Health.
126. Revue des Sciences Médicales.
127. Gazette Médicale de Nantes.
128. Epitome.
129. Dosimetric Medical Review.
130. Canada Medical Record.
131. Bristol Medico-Chirurgical Journal.
132. Archives of Gynæcology.
133. Medicinisches Correspondenz-Blatt des Württembergischen arztlichen Landesvereins.
134. The Doctor.
135. Southwestern Medical Gazette.
136. Revue Mensuelle de Laryngologie, d'Otologie et de Rhinologie.
137. Practice.
138. New England Medical Monthly.
139. Medical Standard.
140. La Thérapeutique Contemporaine.
141. Herald of Health.
142. Gazette Médicale de l'Algérie.
143. Daniel's Texas Medical Journal.
144. College and Clinical Record.
145. Revista de Medicina y Farmacia.
146. Annales d'Hygiène Publique et de Médicine Légale.
147. Occidental Medical Times.
148. Revue Médico-Chirurgicale des Maladies des Femmes.
149. Peoria Monthly Medical.
150. Medicinische Monatschrift.
151. Medical Analectic.
152. La France Médicale.
153. Journal d'Hygiène.
154. Gazette de Gynécologie.
155. Denver Medical Times.
156. Chemist and Druggist.
157. Brooklyn Medical Journal.
158. Archiv für Kinderheilkunde.
159. Sanitary News.
160. Revue Médicale de Toulouse.
161. Pittsburgh Medical Review.
162. Nouvelles Archives d'Obstétrique et de Gynécologie.
163. Medical Missionary Record.
164. La Tribune Médicale.
165. Journal de l'Anatomie et de la Physiologie Normales et Pathologiques de l'Homme et des Animaux.

166. Journal of Mental Science.
167. Independent Practitioner.
168. Gazette Médicale de Strasbourg.
169. Centralblatt für die Gesammte Therapie.
170. Buffalo Medical and Surgical Journal.
171. Annales d'Oculistique.
172. Sanitary Era.
173. Recueil d'Ophtalmologie.
174. Ceylon Medical Journal.
175. Nice-Médical.
176. Medical Summary.
177. Le Praticien.
178. Journal of Physiology.
179. Gaceta Médica de Mexico.
180. Centralblatt für die Gesammte Medicin.
181. Bulletin Médical du Nord.
182. Archiv für Physiologie.
183. Sanitary Inspector.
184. Revue Médicale de l'Est.
185. Physician and Surgeon.
186. Medical World.
187. Liverpool Medico-Chirurgical Journal.
188. Journal de Médecine de Bordeaux.
189. Gesundheit.
190. Centralblatt für praktische Augenheilkunde.
191. Dietetic Gazette.
192. Chicago Medical Times.
193. Moniteur de Thérapeutique.
194. Bulletins et Mémoires de la Société Obstétricale et Gynécologique.
195. Archives de Médecine Navale.
196. Southern Clinic.
197. Revue Médicale de la Suisse Romande.
198. Progress.
199. Medical Brief.
200. Sei-I-Kwai Medical Journal.
201. Journal de la Société de Médecine de l'Isère.
202. Medical Age.
203. La Normandie Médicale.
204. Archiv für Ophthalmologie (Gräfe).
205. Centralblatt für Allgemeine Gesundheitspflege.
206. Indian Medical Gazette.
207. Atlanta Medical and Surgical Journal.
208. Revue Scientifique.
209. Pharmaceutische Zeitschrift für Russland.
210. Medico-Legal Journal.
211. Lyon Médical.
212. Journal de Médecine et de Chirurgie Pratiques.
213. Glasgow Medical Journal.
214. Correspondenz-Blatt für Schweizer Aerzte.
215. Studies from the Biological Laboratory of Johns Hopkins University.
216. Albany Medical Annals.
217. Paris Médical.
218. Manitoba, Northwest, and British Columbia Lancet.
219. La Clinique.
220. Journal des Sciences Médicales de Lille.
221. Gazette Médicale de Montréal.
222. Cleveland Medical Gazette.
223. Bulletin de la Société des Médecins et Naturalistes de Jassy.
224. American Practitioner and News.
225. Le Poitou Médical.
226. Archiv für Klinische Chirurgie.
227. Leonard's Illustrated Medical Journal.
228. La Loire Médicale.
229. Journal of Medicine and Dosimetric Therapeutics.
230. Gazette Médicale de Picardie.
231. Chicago Medical Journal and Examiner.
232. Gazette Médicale de l'Orient.
233. Columbus Medical Journal.
234. American Lancet.
235. China Medical Missionary Journal.
236. Archives de Tocologie.
237. American Journal of Pharmacy.
238. Chemical News.
239. Journal of Dietetics.
240. Virchow und Hirsch's Jahresbericht über die Fortschritte der Anatomie und Physiologie.
241. Revue de l'Hypnotisme.
242. Journal of Nervous and Mental Disease.
243. Archives de Médecine et de Pharmacie Militaires.
244. L'Électrothérapie.
245. Journal of Cutaneous and Genito-Urinary Diseases.
246. Archiv für die gesammte Physiologie.
247. Calcutta Health Journal.
248. Journal of Morphology.
249. Archives of Ophthalmology.
250. Archives de l'Anthropologie Criminelle et des Sciences pénales.

251. Annals of Hygiene.
252. Zeitschrift für Medicinalbeamte.
253. Journal d'Oculistique et de Chirurgie.
254. Archiv für Augenheilkunde.
255. Jägers Monatsblatt.
256. Journal d'Accouchements.
257. Canada Lancet.
258. Medical Temperance Journal.
259. Medical Press of Western New York.
260. American Microscopical Journal.
261. Journal of the New York Microscopical Society.
262. Annales de l'Institut Pasteur.
263. American Journal of Psychology.
264. Nursing Record.
265. Centralblatt für Physiologie.
266. Annales des Maladies des Organes Génito-Urinaires.
267. Australasian Medical Gazette.
268. O Correio Medico, Lisbon.
269. Journal of the National Association of Railway Surgeons.
270. L'Organe de la Confraternité Médicale, Bruxelles.
271. Medical Waif.
272. South African Medical Journal.
273. Archiv für Experimentale Pathologie und Pharmacie.
274. Archives d'Ophtalmologie.
275. Cincinnati Medical News.
276. Journal de Médecine, de Chirurgie, et de Pharmacologie, Bruxelles.
277. Journal of Anatomy and Physiology.
278. American Journal of Insanity.
279. Medical Herald.
280. Annales de la Société d'Anatomie-Pathologique.
281. Medical Advance.
282. Montreal Medical Journal.
283. Allgemeine Wiener Medizinische Zeitung.
284. Maritime Medical News.
285. Australian Medical Journal.
286. Archives de Laryngologie, de Rhinologie et des Maladies des Premières Voies Respiratoires et Digestives.
287. Annales de Dermatologie et de Syphiligraphie.
288. La Presse Médicale Belge.
289. Archives Roumaines de Médecine et de Chirurgie, Paris.
290. La Pratique Médicale.
291. Archives de Médecine et de Chirurgie Pratiques.
292. St. Louis Medical Journal.
293. Annales Médico-Chirurgicales, Liége.
294. Bulletin de la Phthisie Pulmonaire.
295. Allgemeine Zeitschrift für Psychiatrie und psychish-gerichtliche Medicin.
296. Les Nouveaux Remèdes.
297. Allgemeine Medicinische Central-Zeitung.
298. Gazette Hebdomadaire des Sciences Médicales, Montpellier.
299. Annales de Chimie et de Physique.
300. Annales de Physiologie, Normale et Pathologique.
301. Deutsche Zeitschrift für Chirurgie.
302. Jahrbüch für Morphologie.
303. L'Abeille Médicale.
304. La Province Médicale.
305. L'Année Médicale de Caen.
306. Petit Moniteur de la Médecine.
307. L'Impartialité Médicale.
308. Journal de la Société de Médecine de la Haute Vienne, Limoges.
309. Charité-Annalen.
310. Jahrbuch für Praktische Aerzte.
311 Vierteljahresschrift für gerichtliche Medicin und Sanitätswesen.
312. Monatshefte für Ohrenheilkunde.
313. Monatshefte für Anatomie und Physiologie.
314. Zeitschrift für Psychiatrie und gerichtliche Medicin.
315. Archiv für Pathologie und Physiologie.
316. Anatomischer Anzeiger.
317. Centralblatt für Gynækologie.
318. Anzeiger über Novitäten und Antiquar. der Medicine.
319. Centralblatt für Klinische Medicin.
320. Archiv für Anatomie und Physiologie.
321. Annales d'Orthopédie.
322. Archiv für Anthropologie.
323. Mittheilungen aus der Ophthal. Klinik in Tübingen.
324. Archiv für Hygiene.
325. American Analyst.
326. Archiv für klinische Medicin.
327. Journal des Connaissances Médicales Pratiques et de Pharmacologie.
328. Archiv für Ohrenheilkunde.
329. Journal de Médecine, de Chirurgie et de Pharmacologie.
330. Médecin Clinicien.
331. Der Praktische Aerzt.
332. Oesterreichische Badezeitung.

333. Blätter für Gesundheitspflege.
334. Annales de l'Hospice des Quinze-Vingts.
335. Biologisches Centralblatt.
336. Centralblatt für Chirurgie.
337. Quarterly Journal of Inebriety.
338. Jenaische Zeitschrift für Natürwissenschaften.
339. Journal d'Hygiène contre les Maladies du Premier Age.
340. Gazette d'Ophtalmologie.
341. Medizinisch-Chirurgisches Centralblatt.
342. Journal des Sages-femmes.
343. Monatsblatt für öffentliche Gesundheitspflege.
344. Zeitschrift für Ohrenheilkunde.
345. Annales Thérapeutique Médico-Chirurgicales.
346. Monde Thermal.
347. American Journal of Ophthalmology.
348. Montpellier Médical.
349. American Psychological Journal.
350. Cursalon Zeitschrift für Balneologie.
351. Freidrich's Blätter für gerichtliche Medizin und Sanitäts-Polizei.
352. Allgemeiner Deutsche Hebammen-Zeitung.
353. Zehender's Klinische Monatsblätter für Augenheilkunde.
354. Der Frauenarzt.
355. Archives of Scientific Medicine.
356. Archives de Biologie.
357. Zeitschrift für Therapie.
358. Journal de Chimie Médicale, de Pharmacie, de Tocologie et Revue de Nouvelles Scientifiques, Nationales et Étrangères, Paris.
359. Journal de Pharmacie et de Chimie, Paris.
360. Archives Générales de Médecine, Paris.
361. Annales Médico-Psychologiques, Paris.
362. Répertoire de Pharmacie, Paris.
363. Gazette Hebdomadaire de Médecine et de Chirurgie, Paris.
364. Chicago Journal of Nervous and Mental Disease.
365 Centralblatt für die medicinischen Wissenschaften.
366. Jahrbuch für Kinderheilkunde und physiche Erziehung.
367. Irrenfreund.
368. Archiv für Psychiatrie und Nervenkrankheiten.
369. Norsk Magazin for Laegevidenskaben, Christiania.
370. Hygeia, Stockholm.
371. Nordiskt medicinsk Arkiv, Stockholm.
372. Lakäreförenings Forhändingar, Upsala.
373. Hospitals-Tidende, Copenhagen.
374. Bibliothek for Læger, Copenhagen.
375. Ugeskrift for Læger, Copenhagen.
376. Lo Sperimentale, Florence.
377. Gazeta Médica de Granada.
378. La Gazette Médicale de Liège.
379. Braithwaite's Retrospect.
380. Jahrbuch der Praktischer Medizin.
381. Morphologisches Jahrbuch für Anatomie und Entwickelungs Geschichte.
382. Wiener Klinik.
383. Memorabilien, Heilbronn.
384. Internationale Monatsschrift für Anatomie und Histologie.
385. Monatsschrift für Ohrenheilkunde.
386. Deutsche Vierteljahresschrift für öffentliche Gesundheitspflege.
387. Jahresbericht über Leistungen und Fortschritte der Ophtalmologie.
388. Jahresbericht über Fortschritte der Anatomie.
389. Jahresbericht über Fortschritte der Physiologie.
390. Deutsches Wochenblatt für Gesundheitspflege und Rettungswesen.
391. Zeitschrift für Biologie.
392. Medizinisch-Chirurgisches Rundschau.
393. Zeitschrift für Geburtshülfe und Gynækologie.
394. Health.
395. Jahrbuch für Psychiatrie.
396. Archives der Pharmacie, Halle.
397. Klinische Zeit und Streitfragen.
398. Journal of the Anthropological Institute.
399. Medicinische Neuigkeiten für Praktiche Aerzte.
400. Journal of the Royal Microscopical Society.
401. Zeitschrift für wissenschaftliche Mikroskopie und für Mikroskopische Technik.
402. Jahresbericht über Leistungen und Fortschritte in der Gesammten Medicine. Virchow and Hirsch.

403. Mind.
404. Volkmann's. Sammlung klinischer Vorträge.
405. Zeitschrift für Heilkunde.
406. Medizinische Jahrbücher der Gesellschaft der Aerzte in Wien.
407. Sanitary Record.
408. St. Bartholomew's Hospital Reports.
409. Archives Italiennes de Biologie.
410. Archives de Physiologie. Brown-Séquard.
411. Sitzungsbericht der k. k. Academie der Wissenschaften in Wien.
412. St. George's Hospital Reports.
413. L'Art Médical.
414. Bulletin de la Clinique Nationale Ophtalmologique de l'Hospice des Quinze-Vingts.
415. Courrier Médical.
416. L'Électricien.
417. Aerzliches vereinsblatt für Deutschland.
418. St. Thomas' Hospital Reports.
419. Bulletin et Mémoires de la Société de Chirurgie, Paris.
420. Bulletin et Mémoires de la Société Médicale des Hôpitaux.
421. Bulletin et Mémoires de la Société française d'Otologie et de Laryngologie.
422. American Medical Journal.
423. Royal London Ophthalmic Hospital Reports.
424. Archives Slaves de Biologie.
425. American Annals of the Deaf.
426. Comptes Rendus hebdomadaires et Mémoires de la Société de Biologie.
427. American Clinicals.
428. Guy's Hospital Reports.
429. Veröffentlichungen d. kaiserlichen Gesundheits Amtes.
430. Louisville Medical News.
431. Courier of Medicine.
432. Journal of Comparative Medicine and Surgery.
433. Concours Médical.
434. Gazette des Eaux.
435. Revue Clinique d'Oculistique.
436. Journal of Heredity.
437. Schweizer Blätter für Gesundheitspflege.
438. Gazette Française de Médecine et de Pharmacie.
439. Revue Obstétricale et Gynécologique.
440. Microscope.
441. Revista de Sanidad Militar.
442. Gazette Médicale et Pharmaceutique de France.
443. Revue d'Hygiène et de Police Sanitaire.
444. New York Medical Monthly.
445. Zeitschrift für Schulgesundheitspflege.
446. Revue spéciale de l'Antisepsie Médicale et Chirurgicale.
447. Revue d'Anthropologie.
448. Revue Médicale Française et Étrangère.
449. Archives d'Anatomie Pathologique, Charcot.
450. Bulletin de la Société Clinique de Paris.
451. La Jeune Mère.
452. Nouvelle Iconographie de la Salpêtrière.
453. Anales de la Academía de Ciencias médicas de la Habana.
454. Archives Médicales Belges.
455. Archiv für rationelle Stadteenwässerung.
456. Revista de Ciencias Médicas, Barcelona.
457. Archives de Médecine expérimentale et d'Anatomie pathologique.
458. Archivos de la Sociedad de Estudios Clinicas.
459. Cronica Médico-Quirúrgica de la Habana.
460. Archivii per le Scienze Mediche Torino.
461. Archivii Italiani di Laringologia, Naples.
462 Post Graduate.
463. Anales de Obstetricia ginecopathia y pediatria, Madrid.
464. Bollettino della sezione delle Scienze Mediche.
465. Journal of the Health Society of Calcutta.
466. Archivio di Ortopedia, Milano.
467. Bulletin de la Société de Pharmacie de Bruxelles.
468. American Dermatologist.
469. Boston Journal of Health.
470. Annali Clinici dell' Ospedale degl' Incurabili in Napoli.
471. Bulletins et Mémoirs de la Société de Médecine Pratique, Paris.
472. Bollettino della Scienze Medica di Bologna.

473. American Druggist.
474. Archivii italiani di cliniche mediche.
475. Berliner Klinik.
476. Canada Medical and Surgical Journal.
477. Annali di Chimia e de Farmacologia, Milan.
478. Bulletin du Service de Santé Militaire, Paris.
479. Comptes-Rendus de l'Académie des Sciences.
480. Annali uniti di Medicina e Chirurgia.
481. Boletin di Medicina y Farmacia, Barcelona.
482. Canadian Pharmaceutical Journal.
483. The Climatologist.
484. Bollettino della Reale Accademia Medica di Roma.
485. Archivio di patologia infantile.
486. China Imperial Maritime Customs Medical Reports.
487. Correspondenzblatt des Allgemeinen Mecklenburgischen Arztevereins.
488. Diet and Hygiene.
489. El Dictamen, Madrid.
490. Farmacisto Italiano.
491. Journal de Micrographie, Paris.
492. Druggists' Bulletin.
493. El Observador Medico.
494. Gaceta Médica Catalana, Barcelona.
495. Deutsche Militärärzliche Zeitschrift.
496. Correspondenzblatt der Allgemeinen Aerzte von Thuringen.
497. Il Morgagni.
498. Finska Läkare sällskapets Handlingar, Helsingfors.
499. Journal of Microscopy and Natural Science.
500. Gazzetta Medica di Torino.
501. Bollettino d'Oculistica.
502. Der Naturarzt.
503. El Siglo Médico, Madrid.
504. Journal of Hydrotherapy.
505. Gazzetta degli Ospitali, Milan.
506. Dakota Medical Brief.
507. Giornale italiano delle malattie veneree e della pelle.
508. Skandinav. Archiv für. Physiologie.
509. Ejenedêlnaya Klinicheskaya Gazeta.
510. Druggists' Circular.
511. Blätter für Kriegsverwaltung.
512. Gyogyaszat, Buda-Pesth.
513. Il Progresso Medico.
514. Medical Chips.
515. Gazzetta medica di Roma.
516. La Independencia Medica, Barcelona.
517. Vaccination Enquirer and Health Review.
518. Journal of the College of Science.
519. Journal of Materia Medica.
520. Gazeta lekarska.
521. Journal of Comparative Pathology and Therapeutics.
522. Klinische Studien, Winternitz.
523. Kinesitherapie.
524. La Médecine Contemporaine.
525. Zeitschrift der Tokio-Medicinischen Gesellschaft.
526. Giornale della Reale societa Italiana d'igiene.
527. La Medication Martiale.
528. L'Echo Médical.
529. La Médicine Sans Medicaments.
530. Meditzinskvië Obozrenië.
531. Giornale Medico del Real esercito, Roma.
532. Les Nouveaux Nés.
533. Medical and Professional Review, London.
534. Gaceta de oftalmologia y de otologia, etc., Madrid.
535. La Médecine Illustrée.
536. Medical Reformer, Agra City, India.
537. Giornale interne delle sci. mediche.
538. Le Scalpel.
539. Medical Quotidien, Paris.
540. L'Osservatore.
541. Aerzliche Mittheilungen aus Baden.
542. La Cronica Médica, Peru.
543. Medical Missionary Journal.
544. La Correspondencia Médica.
545. Mental Science Magazine.
546. Le Monde Pharmaceutique.
547. Massachusetts Medical Journal.
548. L'Union Pharmaceutique.
549. Medicina Contemporanea.
550. Le Pharmacien Populaire.
551. Medycyna, Warsaw.
552. Le Moniteur des Produits Chimiques et de la Droguerie.
553. Medicinische Rundschau.
554. Ottawa Medical World.
555. Meditzinisko Spisanië.
556. National Druggist.
557. New Zealand Medical Journal.
558. O Brazil Medico.
559. Orvosi Hetilap.
560. Pharmaceutische Post.
561. Quarterly Therapeutic Review.
562. Pharmaceutical Era.

563. Orvosi Heti Szemle.
564. Progrès médical Roumain, Bucharest.
565. Quarterly Journal of Medical Science, London.
566. Revista Practica de Pediatrica.
567. Sanitary Engineering.
568. St. Joseph Medical Herald.
569. Prziglad lekarski.
570. Quarterly Compendium of Medicine.
571. Russkaia Meditzina, St. Petersburg.
572. Tidsskrift for praktisk medicin, Christiana.
573 Terapeutica medica, Naples.
574. Revue Slave des Sciences Médicales.
575. Pharmaceutische Centralhalle für Deutschland.
576. Revue des Pyrénées.
577. Union Médicale et Scientifique du Nord-Est, Reims.
578. Revista Medica de Chili, Santiago.
579. Vereinsblatt der pfælzischer Aerzte.
580. Revue Sanitaire, Bordeaux.
581. Pharmaceutical Record.
582. Revue des Sciences Hypnotiques.
583. Nederlandsch. Tijdschrift voor Geneeskunde, Amsterdam.
584. World's Medical Review.
585. Revue Scientifique et administrative des Médecins des Armées.
586. Wratsch., St. Petersburg.
587. Répertoire de Thérapeutique.
588. Wiadomosci lekarski.
589. Riforma Medica, Rome.
590. Wjestnik psychiatrie i neoropathologie, Russia.
591. Revista sperimentale de freniatria e di medicina legale.
592. Zeitschrift über die Behandlung von Schwachsinnigen Epileptikern, Dresden.
593. Zeitschrift für vergleischende Augenheilkunde.
594. Revista Veneta di scienze mediche.
595. Zeitschrift für Geburtshülfe und Frauenkrankheiten, Russia.
596. Revista clinica e terapeutica, Naples.
597. Bulletin de la Société médicale de l'Yonne, Auxerre.
598. Zeitschrift für Wundärzte und Geburtshilfer, Hegnach.
599. Russische Medicin.
600. Mittheilungen des Vereins Schleswig-Holst. Aerzte, Kiel.
601. Revista Clinica di Bologna.
602. American Anthropologist,
603. Revue d'Anthropologie, Paris.
604. Raccoglitore medico.
605. Archivio di psychiatria, scienze penali ed antropologia criminale, Torino.
606. L'Homme.
607. Revista especial de oftalmologia, sifilografia y dermatologia, Madrid.
608. Revue Internationale Scientifique et populaire des falsifications des Denrées alimentaires.
609. Archiv für Anatomie und Entwickelungsgeschichte.
610. Revista delle cliniche.
611. Revista Internazionale di Medicina, Italy.
612. Archivos de Medicina y cirurgia de los niños, Madrid.
613. Revista Balear de Ciencias Medicas.
614 Giornale di farmacologia, Torino.
615. La Rassegna di Scienze Mediche, Modena.
616. Gazzetta medica italiana-lombarda, Milan.
617. Indian Medical Journal.
618. Cronica Medica de Valencia.
619. Vestnik sudeb. meditzin, St. Petersburg.
620. El Monitor medico, Lima.
621. Ejen. journal prakttische medicin, St. Petersburg.
622. Pesther medicinische und chirurgische Presse, Buda-Pesth.
623. Der Militärarzt.
624. Bollettino delle malattie dell, orecchio, della Gola e del naso, Florence.
625. Gazzetta di medicina publica, Naples.
626. Annales de la Société d'hydrologie médicale de Paris.
627. Mittheilung des Vereins der Aerzte in Medicin, Vienna.
628. Bollettino di Clinica, Milan.
629. Union de las ciencias medicas, Carthagena.
630. Coimbra médica, Lima.
631. Minnesota Medical Monthly.
632. Revista de Medicina y cirugica practica, Madrid.
633. Revista de laringologia, otologia y rinologia, Barcelona.
634. Revista médica de Sevilla.
635. Revista dos cursos praticos et theoreticos da Faculdade de medicini do Rio de-Janeiro.
636. Dnevnik obsh vrach g Kazani.

637. Annali della Universita libera di Perugia.
638. Revista Medica de Bogota.
639. Revista Argentina de ciencias medicas, Buenos Ayres.
640. Kronika lekarska, Warsaw.
641. Annales de la Société de Médecine d'Anvers.
642. Gaceta Medica di Bahia.
643. Revue Médicale de Louvain.
644. Zemskii vrach. Tchernigoff.
645. Illustrated Medical News, London.
646. Clinica Navarra.
647. Alabama Medical and Surgical Age.
648. Journal des Sociétés Scientifiques de la France et de l'Étranger.
649. Zeitschrift der Bakterienkunde.
650. Weiner Medicinische Blätter.
651. Mittheilung aus der medicinischer klinik zu Königsberg.
652. Giornale di Neuropatologia.
653. La Médecine Russe.
654. Chirurgisk Westnik.
655. Bollettino dell, Ambulanza di Milano.
656. Revista Brazileira de Medicina.
657. International Review of Medical and Surgical Technics, Palatka, Fla.
658. Bulletin international des sociétés de secours aux militaires blessés, Genêve.
659. Voz de Hipocrates, Mexico.
660. Spitalul, Bucharest.
661. Boletin da Academia imperial de medicina de Rio de Janeiro.
662. Revista médico-quirùrgica, Buenos Ayres.
663. Gazette Médicale de Liége.
664. Moniteur du Praticien,
665. El Progreso ginecologica y pediatra, Valencia, Spain.
666. Revista de medicina cirujia y farmacia, Barcelona.
667. Jornal de Pharmacia e chimica.
668. Jornal de Pharmacia e sciencias accessorias, Portugal.
669. Journal de la Société des Médecins gynécologiques de Russie.
670. Gazette Clinique hebdomadaire, Russia.
671. Revue Médicale de Moscou.
672. Der Fortschritt, Geneva.
673. Satellite of the Annual.
674. Tokyo Medical Journal, Japan.
675. Kyoto Medical Journal, Japan.
676. Osaka Medical Journal, Japan.
677. Japanese and Foreign Medical News.
678. Eira, Sweden.
679. Centralblatt für Kinderheilkunde.
680. Medical Times and Gazette.
681. Japan Medical Review.
682. Entomologisk Tijdskrift, Stockholm.
683. Novosti Terapii.
684. Annales et Bulletin de la Société de Médecine de Gand.
685. Bulletin de la Société de Médecine Mentale de Belgique.
686. Archivio Italiano per le Malattie Nervose e per le Alienazione Mentale.
687. Journal of the Army Medical Society, Japan.
688. Psychiatrische Bladen.
689. Reports of the Psychial Research Society.
690. Bulletin de la Société de Psychologie Physiologique.
691. Journal of the Tokyo Medical Association.
692. The Hospital.
693. Medical News of Japan.
694. Journal of Public Health.
695. Hospital Gazette.
696. Khïrürgitchesky Vestnik, St. Petersburg.
697. British Journal of Dermatology.
698. Chemiker Zeitung.
699. Revista Clinica de Barcelona.
700. Revue Mycologique.
701. Zoologischer Anzeiger.
702. Kozégeszségügy és törvényszéki orvoston, Hungary.
703. Westnik gigieny i ssudebnoj medizini.
704. Westnik Ophtalmolog.
705. Journal Ophtalmologique du Nord.
706. Bulletin de statistique démographique et médicale de Bruxelles.
707. Journal de la Société de pharmacie d'Anvers.
708. Bulletin de la Société Anatomo pathologique de Bruxelles.
709. Bulletin de la Société belge de microscopie.
710. Bulletin de la Société royale de médecine publique de Belgique.
711. Bulletin de la Société médicale de l'arrondissement.
712. Bulletins et publications de la Société de Médecine du Luxembourg.
713. Bulletin de la Société de Médecine de Reims.

714. Archivio Bizzozero.
715. Bulletin de la Société de Médecine du département de la Sarthe.
716. Los Avisos, Madrid.
717. Bulletins et publications de l'Académie des Sciences de Belgique.
718. Bulletin de l'Institut de Statistique.
719 Western Druggist.
720. Revue Internationale de l'Électricité.
721. Pharmaceutical Journal and Transactions.
722. Jahresbericht über die Fortschritte der Geburtshilfe und Gynækologie.
723 Index Medicus.
724. Gynäkologisches Centralblatt.
725. Moniteur d'Ophtalmologie.
726. Vestnik Oftalmologii.
727. Aerzliche Zeitschrift.
728. Répertoire universel d'obstétrique et de gynécologie.
729. Transcaucasian Lying-in Hospital Reports.
730. Dutch Review of Medicine..
731. Wiener Medicinisches Jahrbuch.
732. Rivista Clinica dell' Universita di Napoli.
733. Annales de Médecine Thermale.
734. Australasian Journal of Pharmacy.
735. La Médecine Hypodermique.
736. Abstract and Index.
737. L'A. Gazzettino Antropologico.
738. Centralblatt für Orthopädische Chirurgie und Mechanik.
739. Giornale della Real Accademia di Medicina.
740. Archiv für Wissenschaften und praktische Thierheilkunde.
741. Ephemeris.
742. Apotheker-Zeitung.
743. Het Maandblad voor Apothekers.
744. Pharmaceutical Journal and Transactions.
745. Zubovratchebnyi Vestnik.
746. Bulletins et Travaux de la Société de Pharmacie de Bordeaux.
747. Union Pharmaceutique.
748. Vestnik klin. i sudebvoi psichiat i nevropatol.
749. Bulletin de la Société d'anthropologie de Paris.
750. Brown-Séquard's Archives of Scientific and Practical Medicine.
751. Bulletin de la Société de Biologie.
752. American Journal of Morphology and Psychiatry.
753. Deutsche Zeitschrift für praktische Medicin.
754. Wojenno Ssanitasnoje, St. Petersburg.
755. Langenbeck's Archiv.
756. Northern Lancet.
757. Giornale di Clinica, Terapia e Medicina Pubblica.
758. Casopis lékaruvceských v. Praze.
759. American Journal of Chemistry.
760. Times and Register.
761. Beiträge zur klinischen Chirurgie.
762. Archivio Italiano di Pediatria.
763. Archives de Sociologie.
764. Johns Hopkins Hospital Bulletin.
765. La Salute Publica.
766. Studies in Clinical Medicine.
767. La Medicina Práctica.
768. Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie.
769. Archiv für Psychologie.
770. Meditzinskī Preglēd.
771. Journal of the Respiratory Organs.
772. Sicilia med., Palermo.
773. Revista de las Ciencias Medicas., Habana.
774. Bol. de Med. y Cirug., Madrid.
775. Journal of Military Medicine, Sweden.
776. Journal of Ophthalmology, Otology, and Laryngology.
777. Szemézet, Budapest.
778. Nordisk ophthalmologist Tidsskrift, Copenhagen.
779 North American Practitioner.
780. Annales de la Polyclinique de Bordeaux.
781. Clinical Memoranda.
782. Jour. d' Electricité Médicale.
783. Nowiny Lekarski.
784. Revista Médica de México.
785. El tula Médica de Valladolid.
786. St. Louis Polyclinic.
787. Lehigh Valley Medical Magazine.
788. Progeso de gynecol. y pediatria.
789. Clinica Ginecologica.
790. Nederl. Tijdschr. voor Verloskunde en Gynæc.
791. Γαληνὸς 'Αθῆναι.
792. El Estudio, México.
793. Jour. Quekett Micr. Club, London.
794. Mem. Accad. Sci. 1st., Bologna.
795. La Cellule.
796. Archives de Zoologie expér. et Genérale,

797. Sitzb. K. Akad. Wiss. Wien.
798. Revue Mensuelle des Maladies des Yeux.
799. Zdrowie.
800. Medit. Pribav. R'Mors. Sboz.
801. Kansas Medical Journal.
802. Lo Spallansani.
803. Internationale Monatsschrift für Anatomie und Physiologie, Leipzig.
804. Deutsche Monatsschrift für Zahnheilkunde.
805. Dental Cosmos.
806. Archives of Surgery.
807. Journal für Zahnheilkunde.
808. International Dental Journal.
809. American Journal of Dental Sciences.
810. Quarterly Journal of Microscopical Science.
811. Everbusch's Zeitschrift.
812. Biologiska Foreningens Förhandlingar.
813. Dublin Medical Press.
814. Merck's Bulletin.
815. Sanitary World.
816. Bollettino della Società Florentina d'Igiene.
817. Canada Health Journal.
818. Journal of British and Foreign Health Resorts.
819. La Terapia Moderna.
820. La Medicina popular, Barcelona
821 Revista médico-quirurgica, Cadiz.
822. Gazzeta medica puglie. Bari, Italy.
823. Archivio della Riforma Medica.
824. Journal des Maladies Cutanées et Syphilitiques.
825. New England and Yale Review.
826. Notes on New Remedies.
827. Le Mercredi Médical.
828. Rev. Clin. Mal. du Larynx.
829. Pharmaceutical Journal of New South Wales.
830. Rivista International d'Igiene, Naples.
831. Revista de Higiene y Policia Sanitaria, Barcelona.
832. Archives Bohèmes de Médecine.
833. L'Anthropologie.
834. La Psichiatria.
835. Giornale Incurabili Luglio.
836. Annalen der Chemie.
837. Zeitschrift für Nahrungsmittel Untersuchungen und Hygiene.
838. Duodecim. Helsingfors.
839. Bollettino della Società Lancisiana Roma.
840. Bull. de la Soc. impér. nat., Moscow.
841. British Journal of Dental Science.
842. Journal of the British Dental Association.
843. Journal de Médecine Pratique.
844. Medicinische Centralzeitung, Berlin.
845. Med. Vereinszeitung.
846. Ammon's Monatsbericht für Medicin, Augenheilkunde und Chirurgie.
847. Aerzliches Intelligenzblatt.
848. London Medical and Surgical Gazette.
849. Medizin Correspondenzblatt.
850. Medical Times and Gazette.

BOOKS, MONOGRAPHS, THESES, TRANSACTIONS, ETC.

1000. Cyclopedia of Diseases of Children.
1001. Warren Prize Essay, "The Value of the Electrical Methods for the Resuscitation of Persons who have Ceased Breathing."
1002. Recherches et Considérations sur la Population.
1003. Universal Review.
1004. Fortnightly Review.
1005. Scribner's Magazine.
1006. Transactions of the American Climatological Association.
1007. Medico-Chirurgical Transactions. London.
1008. Transactions of the Third General Meeting of the Russian Medical Men at St. Petersburg.
1009. Fenwick. Illumination of Bladder (?).
1010. Thèse de Paris.
1011. Inaugural Dissertation. St. Petersburg.
1012. Jahresbericht der Gesellschaft für Natur und Heilkunde.
1013. Onderzock naar den aard en de oorzaak der Beriberi, en de Middelen om die Ziekte te Bestrijden. (An Investigation into the Nature and Origin of Beriberi, and the

Means to be Adopted for Counteracting the Disease.) By Drs. C. A. Pekelharing and Winkler. Utrecht: Kemink & Son.

1014. Graduation Thesis. Cambridge.
1015. Beiträge zur Pathologischen Anatomie und Physiologie des Menschlichen Rückenmarks. Leipzig.
1016. Ein Beiträg zur Pathologie des Riesenwuchs. Leipzig.
1017. Transactions de la Société Médicale Suédoise.
1018. Transactions of the Association of American Physicians.
1019. Inaugural Dissertation. Berlin.
1020. Bericht aus dem Jenner'schen Kinderspital.
1021. Nineteenth Century.
1022. Report of the Maine Board of Health.
1023. Bacillary Phthisis. Germain Sée. English Translation.
1024. Transactions of the New York State Medical Association.
1025. Weekly Abstract of Sanitary Reports.
1026. On the Changes in Arteries in Phthisis. St. Petersburg, 1889. 48 pp.
1027. Ann. d. Krkh. zu München.
1028. Transactions of the Medical Association of the University of Upsala.
1029. Bronchial Asthma: its Pathology and Treatment. Second edition. 227 pp., 7 pl. 8vo. London: J. & A. Churchill & Co., 1889.
1030. Die Behandlung des Lungenemphysems und Asthmas mittelst des Athmungsstuhles. 54 pp., 3 diag. 8vo. Halle a. S.: C. A. Kaemmerer & Co., 1889.
1031. Fothergillian Essay. Philadelphia: P. Blakiston & Co., 1888.
1032. Israël. Clinical Observations on Human Actinomycosis, 1885.
1033. Transactions of the Ophthalmological Society of the United Kingdom.
1034. Transactions of the American Ophthalmological Society.
1035. Inaugural Dissertation. Koenigsburg.
1036. Sitzungsbericht der Berliner Akad.
1037. Dorpater Dissertation.
1038. Report of a Committee of the Clinical Society of London on Myxœdema.
1039. Tait. Diseases of the Ovaries.
1040. Doran. Diseases of Ovary, Broad Ligament, and Fallopian Tube.
1041. Thèse de Lyon.
1042. Pitha and Billroth.
1043. Skene. Treatise on Diseases of Women. 966 pp. New York: D. Appleton & Co., 1889.
1044. American System of Gynæcology and Obstetrics.
1045. Zeimssen. Krankheiten des weiblichen Geschlechtes.
1046. Transactions Ninth International Congress.
1047. Hewitt. Diseases of Women.
1048. Olshausen. Die Krankheiten der Ovarien.
1049. Cyclopedia of Obstetrics and Gynæcology.
1050. Playfair. System of Midwifery.
1051. Werth. Beiträge zur Anat. und zur Oper. Behandlung der Extrauterinschwangerschaft, 1887.
1052. Strahan. The Diagnosis and Treatment of Extra-Uterine Pregnancy.
1053. Bernutz, G. Conférences clin, iques sur les maladies des Femmes. 800 pp., 8vo. Paris: G. Masson, 1888.
1054. Tait. Lectures on Ectopic Gestation.
1055. Transactions Twelfth Medical Italian Congress, 1887.
1056. Klinische Beobachtungen. Bologna, 1888.
1057. Report of the Dairy Commissioner of the State of New Jersey.
1058. Scientific American.
1059. Souder-Abdruck, No. 91, Deut. Med. Zeit.
1060. Verhandlungen der Congress für Innere Med. Wiesbaden.
1061. Paris Congress on Tuberculosis.
1062. Williams, J. Cancer of the Uterus.
1063. Proceedings of the Royal Society.
1064. Alexander. Syphilis und Auge. Wiesbaden: Bergmann, 1888–9.
1065. Inaugural Dissertation. Leipzig.
1066. Richet. La chaleur animale. 8 Paris, Alcan.
1067. Enrique Lopez y Veitia. Inaugural Thesis.

1068. Uhthoff, W. Untersuchungen über die bei der multiplen Herdsklerose vorkommenden Augenstörungen. 64 S., Berlin : A. Hirschwald.
1069. Mauthner, L. Die Lehre von den Augenmuskellähmungen. Wiesbaden : Bergmann.
1070. Babes et Eremia. Note sur quelques microbes pathogènes de l'homme. Bucharest, impr. F. Göbl fils.
1071. Inaugural Dissertation. Munchen, 1889.
1072. Maddox. Clinical Use of Prisms and the Decentring of Lenses. Bristol, England : Wright & Co.
1073. Prentice. Dioptric Formulæ, Cylindrical Lenses. New York : James Prentice & Sons, 1888.
1074. Buck's Reference Hand-book of the Medical Sciences.
1075. Deutsche Chirurgie.
1076. Proceedings of the Elisavetgrad Medical Society.
1077. Claude Martin. De la prothèse immédiate appliquée a la résection des maxillaires. 8vo, 440 pp., 230 illust. Paris : G. Masson, 1889.
1078. Port Elizabeth Telegraph.
1079. Jules Rochard. Encyclopédie d'Hygiène et de Médecine Pratique.
1080. Der Diabetes Mellitus. Berlin, 1875.
1081. Reynolds's System of Medicine.
1082. Klein. The Bacteria in Asiatic Cholera.
1083. West. Lectures on Diseases of Infancy and Childhood.
1084. Medical and Surgical History of the War of the Rebellion in America.
1085. Gallet, A. La pleurotomie antiseptique et l'opération d'Estländer. 200 pp., 8vo. Brussels : H. Lamertin, 1889.
1086. Duboué, de Pan. Des indications à suivre dans la traitement préventif et curatif du choléra Asiatique.
1087. Transactions of the American Surgical Association.
1088. Ogle, John W. The Relief of Tympanites by Puncture of the Abdomen.
1089. Proceedings of the Krakow Medical Society.
1090. Bulletin of the U. S. Department of Agriculture.
1091. Drasche, A. Uber den Einfluss der Hochquellenleitung auf die Salubrität der Bevölkerung Wiens während der ersten 15 Jahre ihres Besbandes. Vortrag, 26 S. Wien, H. W. Künast.
1092. Lührs, C. Beiträge zur Kenntniss der Aktino mycosis des menschen 36 S. Göttingen : Vandenhoeck & Ruprecht.
1093. Glasgow Herald.
1094. Annual meeting of the Scottish Metropolitan Medical Society. Edinburgh, 1889.
1095. Presidential Address Philosophical Society of Glascow.
1096. Massachusetts State Board of Health, Senate Document.
1097. Circular of the Kentucky State Board of Health.
1098. Nord, J. Nadere mededeelingen en voorschriften betreffende de nieuwe geneeswijze der tering. 16 pp. Amsterdam : Scheltema & Holkema, 1889.
1099. Transactions of the Philadelphia County Medical Society.
1100. Dublin Quarterly of Surgery.
1101. Proceedings of the Kiev Medical Society.
1102. R. Virchow. Geschwülste.
1103. Haderup on a Clinical Contribution to the Study of Maxillary Cysts. pp. 136. 1889.
1104. Miller, W. D. Die Microorganism der Mundehohle. Leipzig : Geo. Thiem, 1889.
1105. Ehrmann, J., de Mulhouse. Les opérations plastiques sur le palais chez l'enfant, etc. Paris : Félix Alcan, éditeur, 1889.
1106. Transactions of the Michigan State Medical Society.
1107 Martin, A. Ueber die Beziehungen der Retrodeviationen des Uterus zur Schwangerschaft.
1108. Transactions of the Obstetrical Society of London.
1109. Proceedings of the Obstetrical Society of Brussels.
1110. Goodell, W. Lessons in Gynæcology.
1111. Holmes, Surgical Diseases of Children.
1112. Transactions of Third Congress of the German Gynæcological Society.

1113. Ladendorf, A. Das Höhenklima, in meteorologischer, physiologischer und therapeutischer Beziehung Erster Feil. Das solare klima. Das Höhenklima. 70 pp., 12mo. Berlin: E. Grosser, 1889.
1114. Prim. Climatic Treatment of Phthisis, and Spanish Health Resorts. 416 pp. Barcelona.
1115. Thibault, A. Observations cliniques pour servir à l'histoire de la psorospermose folliculaire végétante de Darier, affection cutanée non decrite, etc. Thèse. 48 pp., et grav. 8. Paris: G. Steinheil.
1116 Zambaco. Des affections nerveuses syphilitiques. Paris, 1862.
1117. Lindley's Vegetable Kingdom. Third edition, 1853.
1118. Smith, E. Noble. The Surgery of Deformities.
1119. Owen. Surgical Diseases of Children.
1120 Proceedings of the Congrès Internationale des Sciences Médicales. Section de Chirurgie. Copenhagen, 1884.
1121. Transactions of the London Clinical Society.
1122. Naphey's Surgical Therapeutics, 1882.
1123. Wood. Nervous Diseases.
1124. Mémoires courronnés et autres mémoires.
1125. Northumberland and Durham Society's Transactions.
1126. Verneuil. Mémoires Chirurgicaux.
1127. Merget, A. E. Action toxique, physiologique et thérapeutique des vapeurs mercurielles; recherche du mercure dans les liquides et dans les tissus de l'organisme. Thèse. 245 pp., 4to. Bordeaux: Impr. Gounouilhou.
1128. Buschnew, Vladimira. Kolomel pri Vodiankakh i polostnykh vypotakh, Dissertatsia na stepen Doktora Meditsiny. St. Petersburg, 1888.
1129. Proceedings of the Royal Society of Edinburgh.
1130. Duval, E. A Practical and Clinical Treatise on Hydro-therapeutics.
1131. Neuere Arbeiten über den Hypnotismus. Ref. Director Dr. Bleuler, Rheinau, Zürich.
1132. Forel, A. Der Hypnotismus, seine Bedeutung und seine Handhabung. 88 S., gr. 8. Stuttgart: Euke.
1133. Moll, A. Der Hypnotismus, VII. 279 S., gr. 8. München, Finsterlin.
1134. Bernheim, H. De la suggestion et de ses applications à la thérapeutique. Paris, 1888. Translated into English by Christian A. Herter. 420 pp. New York, 1889.
1135. Björnström, F. Hypnotism: its History and Present Development. Translated by Nils Posse.
1136. Humboldt Library. New York, 1889.
1137. Tuckey, C. Lloyd. Psycho-therapeutics. 80 pp. London, 1889.
1138. Cory, Charles B. Hypnotism or Mesmerism. 61 pp. Boston, 1888.
1139. Liébault, A. Le Sommeil provoqué. 310 pp. Paris, 1889.
1140. Binet, Alfred, and Féré, Charles. Animal Magnetism, International Scientific Series, vol. lx. 378 pp. London, 1887.
1141. Van Renterghem, A. W., et van Eeden, F. Clinique de psychothérapie suggestive. Compte rendu des résultats obtenus pendant la première période bisannuelle. 92 pp., gr. 8. Bruxelles: Manceaux, 1887 to 1889.
1142. Nothnagel and Rossbach. Handbuch der Arzneimittellehre, 1884.
1143. Jahresbericht des Jenner's Kinderspital in Bern.
1144. Mitth. a. d. dermatol. Klin. der Charité in Berlin.
1145. Transactions Royal Medical and Chirurgical Society.
1146. United States Geological Survey.
1147. Hamilton. Enteric Fever in India.
1148. Joseph Jones. The Use of Antipyretic Remedies in Febrile Diseases. New Orleans, 1889.
1149. Münchener Neueste Nachrichten.
1150. Brouardel. Statistique Médicale pour 1885.
1151. Pampoukis. Clinical and Bacteriological Study on the Paludal Fevers of Greece. Paris, 1888.
1152. Germain Sée. Traité des Maladies du Cœur.
1153. Pepper's System of Medicine.

1154. Vorlesungen über die Krankheiten des Herzens, von Dr. O. Fräntzel, Prof. extraord. I. Die idiopathischen Herzvergrösserungen.

1155. Lang, T. Die Syphilis des Herzens. 82 pp., 8vo. Wien, W.: Braumüller.

1156. Guinon, L. J. De quelques troubles urinaires de l'enfance; neuroses urinaires de l'enfance. 1116 pp., 4to. Thèse. Paris: G. Steinheil.

1157. Romme. Contribution à l'étude de l'acétonurie et du coma diabétique. Thèse. Paris, 1888.

1158. Oliver, George, on Bedside Urine-Testing. Fourth edition. H. K. Lewis, Gower Street, 1889.

1159. Berichte der Deutscher Chemischer Gesellschaft.

1160. Rauzier, G. De la diminution de l'urée dans le cancer. xiv, 111 pp., 8vo. Paris: G. Masson.

1161. Godet, A. Contribution à l'étude des alcaloïdes de l'urine. Thèse. 51 pp., 4to. Paris: G. Steinheil.

1162. Proceedings of the Kostroma Medical Society.

1163. Staehely. Fiebertheorie und Behandlung v. Fieber in Allgemeinen. Darmstadt: Druck v. H. Hohmann.

1164. Payne. Observations on Some Rare Diseases of the Skin: Granuloma Fungoides, Erythrasma, a Nodose Condition of the Hair, Pruritus Hiemalis. London: Smith & Elder.

1165. Anthen. Ueber die Wirkung der Leberzelle auf das Hämoglobin.

1166. Gonthier. Étude sur les inhalations d'oxygène dans la diphthérie. Paris: G. Steinheil.

1167. Kreibohm. Ueber das vorkommen pathogener Mikroörganismen im Munde. Göttingen: Vandenhoeck und Ruprecht.

1168. Müller, P. Beiträge zur Statistik der mehrfachen Schwangerschaft. Jena: H. Dabis.

1169. Occhipinti, E. Contributo allo studio del polso paradosso. Messina: Capra & Co.

1170. Sistema nervoso centrale. Parte ii, punt iii. Alterazioni di circolo, per G. Riva (fine). Processi flogistici, per O. Marchionneschi. Sifilide cerebrale, per D. Barduzzi. 112 pp., 8vo. Milano.

1171 Nerlinger, H. Ueber die Epilepsie und das Fortpflanzungsgeschäft des Weibes in ihren gegenseitigen Beziehungen. Eine historisch-krit. u. klin. Untersuchungen. viii, 144 S. Leipzig: Breitkopf und Härtel.

1172. Landerer, G. Die Privatirrenanstalt "Christophsbad" in Göppingen. 3. Bericht über deren Bestand und Wirksamkeit in den J. 1882–1887, hrsg. von der Direktion. vii, 135 S. Freiburg: Mohr.

1173. Adamkiewicz, A. Pachymeningitis hypertrophica und der chronische Infarkt des Rückenmarkes. Anatomisch und klinisch bearb. iii, 51 S. Mit 1 farb. Taf. gr. 8. Wien: A. Hölder.

1174. Wichmann, J. Ueber das Verhalten des Trichocephalus dispar zur Darmschleimhaut. 19 S., 8vo. Kiel: Lipsius & Tischer.

1175. Volland. Weiteres über die Enstehung der Lungenspitzanämie (Sonder-Abdr. a. Deutsche Medizinal-Zeitung, 61). 7 S., 8vo.

1176. Brückner, C. Neue und naturgemässe Darlegung der Physiologie und Pathologie des menschlichen Magens. 44 S., gr. 8. Ludwigslust, Hinstorff'sche Hofbuchh. (C. Kover.)

1177. Eisenberg, J. Diagnostica batteriologica: tavole ausiliarie all' esercizio pratico. Trad. di T. Ferretti. 178 pp., 8vo. Milano.

1178. Das Normalkind. Praktische Anleitung für Mütter, Kinder gesund, schön und gut grosszuziehen. 8. Aufl. viii, 80 S., 12mo. Berlin: Friedrich Pfeilstücker.

1179. Tedeschi, V. Commentari di pratica pediatrica. IV. La rachite, 24 S. mit 20 Tab. V. Verminosi. VI. Asfissia dei neonati. Contributo al trattamento proposto dal Prof. Schultze. 21 S., gr. 8. Triest: F. H. Schimpff.

1180. Lebouc, L. Étude clinique et anatomique sur quelques cas de tumeurs sous-unguéales. Thèse. 36 pp. et planch., 8vo. Paris: G. Steinheil.

1181. Bordoni-Uffreduzzi, G. La rabbia canina e la cura Pasteur. Second edition. 86 pp., 8vo. Torino.

1182. Vignal, W. Contribution à l'étude des bacteriacées (Schizomycètes). Le bacille mesentericus vulgatus. Avec. 45 fig. 8vo. Paris: Masson.

1183. Jennings, C. E. Cancer and its Complications. 160 pp., 8vo. London: Baillière.

1184. Wagner, L. Ein Fall von kongenitaler Atresie der A. pulmonalis, kombinirt mit Tricuspidalstenose, bei geschlossener Kammerscheidewand. Inaug.-Diss., 28 S. 8vo. Darmstadt.

1185. Dumoret, P. Laparo-hystéropexie contre le prolapsus utérin (nouveau traitement chirurgical de la chute de l'uterus). Thèse. 168 pp., 8vo, avec fig. Paris: Lecrosnier et Babé.

1186. Mensinga. Eine gynäkologische Frage: Wie sichert man am besten das Leben der Ehefrauen. 20 S., mit 1 Tab., gr. 8. Neuwied, Heuser's Verlag (Louis Heuser).

1187. Niemeyer, P. Aerztlicher Rathgeber für gesunde und kranke Frauen vom hygienischen Standpunkte. 9 Briefe in Gemeinverständl. Fassung. viii, 179 S., gr. 8. Jena: Hermann Costenoble.

1188. Güterbock, P. Die chirurgischen Krankheiten der Harn-und männlichen Geschlectsorgane. Für Aerzte und Studirende bearb., Bd. i. Die Krankheiten der Harnröhre und der Prostata. xiii, 260 S., mit 101 Holzschn., gr. 8. Wein: Deuticke.

1189. Schede, M. Meine Erfahrungen über Nierenexstirpationen (Sonderdr.). 45 S., gr. 4. Hamburg: W. Mauke Söhne.

1190. Bassi, G. Contributo allo studio delle nefriti. 18 pp., 8vo. Milano: Francesco Vallardi.

1191. Thierbach, F. Die Methoden der Fussgelenkresektion, insbesondere die Hueteresche Methode mittels vorderen Querschnittes. 41 S., gr. 8. Jena: Neuenhahn.

1192. Poncin, J. Des accidents survenant pendant l'anesthésie dans l'ablation des tumeurs congénitales du cou et de la face. Thèse. 64 pp., 4to. Lyon: Impr. Plan.

1193. Herfurth, A. Ein Fall von Darmwandbruch bei gleichzeitig vorhandenem Darmanhang. 22 S., gr. 8. Jena: Neuenhahn.

1194. Roose, R. Gout and its Relation to Diseases of the Liver and Kidneys. Sixth ed. 191 pp. London: H. K. Lewis.

1195. Babes, V. Septicémie et Saprémie (Extrait du Progrès Médical Roumain). 13 pp. Bucharest: Impr. F. Göbl fils.

1196. Giommi, M. Saggio di Chirurgia delle ossa e delle articolazioni. 106 pp., 8vo. fig. Bologna.

1197. Ardouin, M. Contribution à l'étude des dechirures vagino-périnéales. Thèse. 71 pp. Paris: G. Steinheil.

1198. Hueckstädt, H. Der Uterus arcuatus und seine Beziehungen zur Schwangerschaft und Geburt. 35 S. Bern: Huber & Co.

1199. Narich, B. Proposition d'un nouvel embryotome rachidien, avec treize, expériences à l'appui. 32 pp., avec 4 fig. Paris: Lecrosnier et Babé.

1200. Seeligmann, L. Ueber Anwendung des Antipyrins zur Linderung der Geburtswehen. Inaug.-Dissert., 50 S. München.

1201. Kölliker. Mikroskopische Anatomie des Menschen.

1202. Ueber den Circulations-Apparat in der Nasenschleimhaut, von Prof. Dr. E. Zuckerkandl. Besonders abgedruckt aus dem xlix. Bande der Denkschriften der Mathematisch-Naturwissenschaftlichen Klasse der Kaiserlichen Akademie der Wissenschaften. Wien, 1884.

1203. Die Krankheiten der Nase und des Nasenrachenraums nebst einer Abhandlung über Electrolyse für Specialsten, Chirurgen und praktische Aerzte, von Dr. Rudolph Voltolini, Professor an der Königlichen Universität zu Breslau, 1888.

1204. Barbier. De l'hypertrophie de la muquese des cornets du nez. Thèse de Lyon.

1205. Inaugural Dissertation.

1206. Raulin. Étude sur le lupus primitif de la muquese nasale. Thèse de Paris, 1889.

1207. Transactions de la Société de Médecine Pratique de Montreal.
1208. Natier. Pathogénie et traitement de la fièvre des foins. Paris, 1889.
1209. Tornwaldt. Ueber die Bedeutung der Bursa pharyngea für die Erkennung und Behandlung gewisser Nasenrachenraum Krankheiten. Wiesbaden, 1885.
1210. Kafemann, of Königsberg. Catarrh of the Recessus Pharyngeus Medius. 60 pp. Wiesbaden, 1889.
1211. Leuckardt. Parasites of Man. English edition.
1212. Cazelles, Masars de. Mémoires et réflexions sur le tænia ou ver plat, improprement ver solitaire, et particulièrement sur le tænia percé a jour. Toulouse, 1780.
1213. Études cliniques de médecine militaire. J. B. Ballière, 1864.
1214. Clémenceaux. Des entozoaires du cerveau humain. Thèse. Paris, 1871.
1215. Pouchel. Zur Behandlung der Erkrankungen der Nasen und Rachenraumes.
1216. Pitiot, François. Étude sur les abcès des sinus frontaux et leur traitement. 88 pp., 8vo. Lyon, 1888.
1217. Plaut, Jacob. Untersuchungen über die Rückwirkung der Borsäure auf die Nieren in ihrer Anwendung als Antisepticum. 30 pp. Würzburg: F. Röhrl, 1889.
1218. Kynsey. Report on the Anæmia or Beriberi of Ceylon. Ceylon: Skeen (Government Printer), Colonial Office.
1219. Transactions of the Entomological Society.
1220. Tiedemann. Von lebenden Würmern und Insecten in Geruchsorganen.
1221. Archiv für Naturgeschichte.
1222. Wohlfahrt. Observatio de vermibus per nares excretis. Halæ, 1768.
1223. Neue Notizen.
1224. Provinz. Sanitätsbericht des K. Med. Collegiums, z. Kœnigsberg.
1225. Handbuch der Allgemeinen Pathologie.
1226. Kuechenmeister. On Animal and Vegetable Parasites of the Human Body. Translated from the Second German Edition by Edward Lancaster. Vol. ii. London, 1857.
1227. Memoirs of the Medical Society of London.
1228. Transactions of the Association of Fellows and Licentiates of the King's and Queen's College of Physicians in Ireland.
1229. Transactions of the Royal Irish Academy, Dublin.
1230. Catalogue of the Contents of the Museum of the Royal College of Surgeons in London. Part IV, fascicule 1 (London, 1830). 144 pp. (entry 609 D).
1231. Tijdsskrift for Veterinærer. Kjobenhavn.
1232. Iscovesco, Henri. Contribution à l'étude de la néphrite scrofuleuse. 38 pp., 4to. Paris, 1888.
1233. Transactions of the American Laryngological Association.
1234. Die Frage des Ueberganges gutartiger Kehlkopfgeschwülste in bösartige, speciell nach intralaryngealen Operationen, von Felix Semon, London. 8vo., 194 pp. Berlin: August Hirschwald, 1889.
1235. Oppenheim, H. Die traumatischen Neurosen nach den in der Nervenklinik der Charité in den letzten 5 Jahren gesammelten Beobachtungen. vi, 146 S., gr. 8. Berlin: Aug. Hirschwald, 1888.
1236. Gray. Anatomy, Descriptive and Surgical. Philadelphia, 1887.
1237. Sourdrille, A. Contribution à l'étude des névroses reflexes d'origine nasale et naso-pharyngienne. 117 pp., 4to. Paris, 1887.
1238. Marshall. Neurectasy. London, 1888.
1239. Transactions of the American Neurological Association.
1240. Chataigner, Léon. Des troubles auditifs dans le tabes. 85 pp. Paris: Henry Ollier.
1241. Conchon, A. Étude sur les abcès du cerveau consecutifs à certaines lésions pulmonaires. Thèse. 91 pp., 8vo. Paris: Impr. Davy.
1242. Wolff, Felix. Das verhalten der meningitis cerebrospinalis zu den Infectionskrankheiten. Festschrift z. Eröffnung d. neuen allg. Krankenhauses zu Hamburg-Eppendorf. Hamburg.
1243. Ferrier. Functions of the Brain.

1244. Transactions of the Chicago Gynæcological Society.

1245. Der Kaiserschnitt und seine Stellung zur künstlichen Frühgeburt, Wendung, atypischen Zangenoperation, Craniotomie und zu den spontanen Geburten bei engem Becken. In 6 Beiträgen aus der k. k. Wiener Universitäts-Klinik für Geburtshülfe und Gynækologie des Carl Braun von Fernwald. Herausgegeben von Egon Braun von Fernwald und Karl A. Herzfeld. 156 pp. Wien: A. Hölder, 1888.

1246. Transactions of the Georgia Medical Association.

1247. Delagénière. Étude critique des Méthodes modernes de Trépanation du Crâne.

1248. Von Bergmann, E. Die chirurgische Behandlung von Hirnkrankheiten. 2 Aufl. 189 S., gr. 8. Berlin: Aug. Hirschwald.

1249. Lucas-Championnière. Sur une Série de Vingt cas de Trépanation du Crâne; Quinze cas pour Accidents Cérébraux en dehors du Traumatisme.

1250. Péchadre, A. De la Trépanation dans les Épilepsies Jacksoniennes non Traumatiques. 112 pp., 8vo. Lyon: Impr. Gallet.

GENERAL INDEX.

BY C. SUMNER WITHERSTINE, M.S., M.D.,

PHILADELPHIA.

GENERAL INDEX.

Abasia (see Brain, diseases) ii. A- 30

Abdomen, hydatid cysts iii. C- 7
    penetrating wound iii. M- 10
    surgery of iii. C- 1

Abortion ii. I- 5
    etiology ii. I- 5
    statistics ii. I- 7
    treatment ii. I- 6

Abrus precatorius, therapeutic uses v. A- 2

Abscess, cerebral iii. A- 12
    general iii. K- 6
    hepatic iii. C- 43
    perityphlitic iii. C- 36
    pulmonary iii. B- 12
    subdiaphragmatic iii. B- 9

Absinthe v. F- 21
    liqueur v. B- 1
    therapeutic uses v. A- 2

Absinthism iv. I- 6

Absorptiometer, Bohr's v. I- 31

Acetanilid, therapeutic uses v. A- 3

Acetic acid, therapeutic uses v. A- 6

Acetonuria iv. K- 35

Acetophone or methyl-phenyl-ketone v. B. 2

Acids, tests for i. C- 7
Acne iv. A- 3
    disseminata, therapeutics iv. A- 3
    necrotica iv. A- 3
    small papular scrofuloderm iv. A- 3
    treatment iv. A- 51

Aconite-root v. A- 7
    poisoning by v. A- 7

Acoustics iv. C- 39
    auditory sensations, localization iv. C- 41
    color-hearing — *L'Audition Colorée* iv. C- 41
    deafness, hereditary iv. C- 39
    hypnotism iv. C- 41
    report of Royal Commission on Deaf, Dumb, and Blind iv. C- 42
    teeth and ears, relation between diseases of iv. C- 40
    telephone, injurious effect upon hearing iv. C- 39

THERAPEUSIS.*

ABDOMEN.
  HYDATID CYST, SUPPURATING.
    Secure cyst to abdom. wall, then incis. and drainage; wash out with subl. sol. (1 to 1000), sut. cut edges to marg. of abd. wound; subl. gauze and iodof. dress., iii. C-7.
  PENETRATING WOUNDS.
    STAB-WOUND.
    Sut. of intest., if inj.; catgut sut.; wash intest. with carbol. sol., close abd.; subl. wash, reduct. and suture, laparot., intest. sut., lavage, iii. M-10.
    WOUND BY BULL'S HORN.
    Carbol. oil to bowel, reduct., sut.; Lembert sut., iii. M-10; lap. and liga. of bleed. vessels, iii. M-11.
ABORTION.
    If *acute flexion of uterus*, pessary, dorsal posit.; *lead poison*, remove cause, ii. I-5; *with hæmorrhage*, ergot.; *secundines*, expectant plan; after 3 to 5 mos., avoid force in tearing away am. adher. placenta, judicious delay; but if *fetid discharge*, dilate cervix, remove mass with finger or dull curette, follow by antisept. ut. inject. or pencil of iodof. If *unavoidable* ab., inject. into ut. ev. 3 or 4 hrs.; betw. walls and ovum, hot carbol. wat., using Boseman cath., ii. I-6. Glycerin tampons to cerv., rest in bed. Tampon till ut. dilat., empty ut., remove any adher. placenta with blunt curette, antisept. intra-ut. inject., ii. I-7. Fl. ext. viburnum prunif., very small doses in threatened ab., v. A-138.
ACETANILID, TOXIC EFFECTS.
    Cardiac, respiratory, and vasomotor stimula.; ether hypod.; tinct. belladon., gtt. iv ev. ½ hr. for dos. 4, then ev. 2 hrs. for 8 hrs., v. A-6.
ACNE.
    ℞ Hydrarg. iodochloridi, gr. xxiv (1.5 grm.); axung., ʒss (15.5 grm.)—M. S.: Rub in vigorously, but with caution, iv. A-51.
  CHRONIC.
    Calcium sulphidi [gr. 1-10 to ¼ (0.006 to 0.015 grm.)], sulphur min. wat., iv. A-55. Iron-water springs, v. D-22.
  DISSEMINATA.
    1. *When complicated with seborrhœa*, Vlemingckx's sol.: Calcis viv., 10 p.; sulphur. præcip., 20 p.; M., boil down in glass vessel with water, 200 p., until 120 p. remain; filter; dilute with water 9 p. when used. Dab on affected

AUTHORS QUOTED.

ABDOMEN—
  HYDATID CYST OF—J. M. Girdlestone, iii. C-7.
  PENETRATING WOUNDS OF—H. D. Reckerbach, Arthur T. Cabot, F. B. Harrington, Osherovsky, W. H. Baldwin, J. C. Sexton, Thomson, J. Venkataswanny, G. E. Lyndon, H. Méjasson, Perrier, iii. M-10; Frank Hartley, iii. M-11.
  SURGERY OF THE—J. Ewing Mears, iii. C-1.
ABORTION—
  ETIOLOGY—Grailly Hewitt, Swan, ii. I-5; Robert Park, L. Atthill, Doyle, ii. I-6.
  STATISTICS—Leith Napier, ii. I-7; Langry, ii. I-8.
  TREATMENT—J. G. Cecil, Demelin, W. D. Holmes, Boseman, ii. I-6; Noble, Cornil, von der Goltz, Hegar, Murray, Mundé, ii. I-7.
ABRUS PRECATORIUS, THERAPEUTIC USES—Martin and Wolfenden, v. A-2.
ABSCESS—
  HEPATIC — Mackenzie, Dunn, Williams, Chauvel, iii. C-43.
  PERITYPHLITIC—Weir, iii. C-37; Jacobus, Wylie, Abbe, iii. C-38; Bull, iii. C-39.
  PULMONARY—S. Seabury Jones, iii. B-12; Lassen, Runeberg, Jones, Graves, iii. B-13; W. Koch, von Openchowski, Zakharewitch, iii. B-26; Jos. O'Dwyer, iii. B-27.
  SUBDIAPHRAGMATIC—A. L. Mason, iii. C-9.
ABSINTHE—Cadéac and A. Meunier, P. de Pietra Santa, v. F-21.
  THERAPEUTIC USES—Cadéac and Albin Meunier, v. A-2; Cadéac and Albin Meunier, Ollivier and Laborde, v. B-1.
ABSINTHISM—Laborde and Ollier, Cadéac and Meunier, iv. I-6.
ACETANILID, THERAPEUTIC USES—A. Crombie, C. Z. Wroczynski, v. A-3; W. S. Green, W. R. Cushing, Seinbritzki, v. A-4; Joseph Haigh, James Wilding, C. Klippel, Chéron, E. Fürth, W. R. Allison, Pauschinger, v. A-5; Robert Haley, James E. Gibbons, v. A-6.
ACETIC ACID, THERAPEUTIC USES—E. and J. A. Cutter, v. A-6; E. Maguire, v. A-7.
ACETONURIA—Schrack, von Jaksch, iv. K-35.
ACETOPHONE, OR METHYL-PHENYL-KETONE—Kamenski, Sushchinski, v. B-2.

ACNE—
  DISSEMINATA, THERAPEUTICS — Louis Heitzmann, Vlemingckx, iv. A-3; Heitzmann, iv. A-4; Bulkley, Heitzmann, iv. A-5.
  NECROTICA—Boech, iv. A-3.
  SMALL PAPULAR SCROFULODERM — Pick, Duhring, Van Harlingen, iv. A-3.
  TREATMENT—Gailleton, iv. A-51.
ACONITE-ROOT—P. W. Squire, Frank Woodbury, v. A-7.
  POISONING BY—Fred C. Valentine, v. A-7.

ACOUSTICS—
  AUDITORY SENSATIONS, LOCALIZATION—A. Gouguenheim, Maneuvrier, iv. C-41.
  COLOR-HEARING—*L'Audition Colorée*—Raymond, iv. C-41.
  DEAFNESS, HEREDITARY—Boucheron, iv. C-39.
  HYPNOTISM—J. Burot, iv. C-41; Bernheim and Bérillon, iv. C-42.
  REPORT OF ROYAL COMMISSION ON DEAF, DUMB, AND BLIND—Anon., iv. C-42.

---

* The dosage represented between [ ] was inserted by the editor of this department, owing to its absence in the general text.

GENERAL INDEX.

Acromegaly ....ii. C- 32

Actino-cladothrix ....iii. K- 11

Actinomycosis, clinical symptoms .iii. K- 12
  etiology ....iii. K- 10
  history ....iii. K- 9
  morphology ....iii. K- 10
  prophylaxis ....iii. K- 14
  treatment and prognosis ......iii. K- 13

Addison's disease ....i. G- 42

Adhatoda justicia, therapeutic uses ....v. A- 7

Adonis vernalis — adonidin, therapeutic uses ....v. A- 7

African fever, remittent—Black-water fever ....i. H- 62

Agaricine—agaric acid, therapeutic uses ....v. A- 7

Air, hygiene of ....v. F- 10

Albuminuria—etiology ....iv. K- 9

Alcohol ....v. B- 2
  therapeutic uses ....v. A- 8
  toxic effects ....v. A- 12

Alcoholic inebriety ....iv. I- 1
  pathology ....iv. I- 3
  relation to crime ....iv. I- 5
  responsibility in ....iv. I- 6
  statistics ....iv. I- 6

Aliments ....v. A- 9

Alimentary tract, anomalies of....v. G- 10
  ileum ....v. G- 10
  œsophagus ....v. G- 10
  rectum and anus ....v. G- 11

Alimentation, hygiene of ....v. F- 15
  absinthe ....v. F- 21
  bread, alum in ....v. F- 21
  butter—margarine ....v. F- 22
  fish ....v. F- 20
  food adulteration ....v. F- 21
  foods and leprosy ....v. F- 22
    preserved ....v. F- 22
    tinned ....v. F- 22
    tuberculous ....v. F- 19
  meat-poisoning ptomaines ......v. F- 19
  meat, tuberculous ....v. F- 19
  milk, adulterated ....v. F- 15
    tuberculous ....v. F- 18
  saccharin ....v. F- 21
  sugar, tin in ....v. F- 21
  wines ....v. F- 21

Allium cepa, therapeutic uses ......v. A- 11

THERAPEUSIS.

ACNE (*continued*).
  pts. ev. evg. after express. comedones. Ev. 3 to 6 d. incr. strength of sol. If skin bec. irrit. use cold cream, iv. A-3. ℞ Pot. sulphid., zinci. sulphati., āā ʒj (4.0 grm.); aq. rosæ, ℥iv (124 grm.)—M.; ungt. sulph. (6% to 10%), iv. A-4. Sulph. and vaselin (1 to 10), iv. A-55. Thiol, v. A-136. 2. *When comedones small, papules numerous, few pustules*, soap well rubbed in at n.; first, castile; later, sand- or marble- soap. Express comed., sap. virid. in sev. cases. ℞ Sap. vir. Germ., ℥j (31.0 grm.); alcoh. fort., f℥ij (62.0 grm.); aquæ, f℥iij (93.0 grm.); sp. lavend., f℥ss 15.5 grm.)—M. S.: Rub in and leave on over n.; rem. fol. m. with castile-soap. *Severer forms:* ℞ Beta-naph., ʒiiss (9.0 grm.): sulph. præcip., ʒxiiss (47.0 grm.); vaselin. seu. lanol., sap. vir., āā ʒvss (21.0 grm.)—M. Use at n., leave 15 to 20 m.; remove with oily cotton and finally wash off with castile-soap and hot water. After 2 or 3 app. use cold cream. Resorcin paste (10 %). Paste, resorcin (3 %) and sulphur (6 %), iv. A-4. 3. *Pustular form; comedones numerous and deeply seated* ("acne indurata and pustulosa"). Empty abscesses, arrest hæm. with stypt. cot. *If small cysts*, use pointed stick dipped in sol. fer. perchlor. into open.; sol. ac. carbol. (5 %) rubbed over skin with greased rag as disinfect. Later, sol. ac. salicyl. alcoh. (3%); first dil. with 3 p. wat., rubbed in ev. evg. on flan.; incr. strength of sol., iv. A-4. *Avoid* sharp spoon; *use* acne-lancet to evac. pust. *To rem. pigm. patches left*, use ℞ Hg. am., ʒj (4.0 grm.); bism. subnit., ʒj (40 grm.); ung. aq. ros., ℥j (31.0 grm.)—M. *To remove scars left*, use Bulkley's meth.: Ol. ricin., gtt. iv., grad. incr. to gtt. xxx, t. i. d., iv. A-5.
ACONITE, TOXIC EFFECTS.
  Morphine hypod., emetics, whisky, ammonia, v. A-7.
ACTINOMYCOSIS.
  ABDOMINAL.
    Incision; curette, fol. by antisep., iii. K-14.
  LUNG.
    Resection (?), iii. K-14.
  PROPHYLAXIS.
    Clean teeth and mouth; diet, iii. K-14.
AFRICAN FEVER (BLACK-WATER FEVER).
  Early purge, fol. by ℞ Liq. ammon. acet., f℥ij (62 grm.); spt. æth. nit., f℥j (31 grm.); tinct. hyoscyam., f℥vj (23 grm.); aq. camph., ad ℥viii (249 grm.)—M. S.: Tablesp. ev. 3 or 4 hrs. Salol, gr. x to xx (0.66 to 1.30 grm.) ev. 2 hrs., i. H-62. Lime-juice and effervesc. draught. Fruits, diet light and nour., in sm. quant., at reg. interv. Quin. during convalescence, i. H-63.
ALCOHOL, NARCOSIS.
  Ammon. carb., ʒj (4.0 grm.) dissolv. in water as emetic and antidepressant, v. A-12.

ALCOHOLIC INEBRIETY.
  Seclusion from society, at early stage, iv. I-2; hypnotism, v. A-78, 79.

AUTHORS QUOTED.

ACOUSTICS (*continued*).
  TEETH AND EARS, RELATION BETWEEN DISEASES OF—Robert Barclay, Sexton, Barclay, iv. C-40; Goodwillie, iv. C-41.
  TELEPHONE, INJURIOUS EFFECTS UPON HEARING—Gellé, iv. C-39.

ACROMEGALY — Marie, Charcot, ii. C-34; Marie, ii. C-35; Marie, Fritsch and Klebs, Virchow, Brigidi, Broca, Freund, ii. C-34; Virchow, Fräntzel, Freund, Virchow, Fräntzel, ii. C-35; Adler, Erb, Schulz, Virchow, Strümpell, ii. C-36; Minkowski, Marie, Farge, Ewald, Godlee, Hadden, ii. C-37.
  CLINICAL SYMPTOMS—Fessler, iii. K-12; Tilanus, Karl Maydl, Ullmann, von Hacker, Lange, Bodamer, iii. K-13.
  ETIOLOGY—Baracz, Ammentorp, Lejeune, Nasse, iii. K-10.

ACTINOMYCOSIS, HISTORY—Israël, Afanassieff and Schultz, iii. K-9.
  MORPHOLOGY — Afanassieff and Schultz, Boström and Israël, iii. K-10; Harz, Koch, iii. K-11; Kischensky, McFadyean, iii. K-12.
  PROPHYLAXIS—Curtze, iii. K-14.
  TREATMENT AND PROGNOSIS—Curtze, iii. K-13; Matlakowski, Riehl, iii. K-14.

ADDISON'S DISEASE—Jaccoud, Baumie, Vulpian, Kallendro and Babes, Lehfredt, Rake, i. G-42; Watson, Sjöström, Gade, Eklund, Hodenpyl, Suckling, Baumel, Garrett, Willett, Northrup, Eulenberg, anon., Caverhill, i. G-43; M'Lachlin, Virchow, Lamarque, West, Perry, Griffiths, Berdach, Pilliet, i. G-44.

ADHATODA JUSTICIA, THERAPEUTIC USES—Hooper, Jayesingha, H. H. Rusby, v. A-7.

ADONIS VERNALIS—ADONIDIN, THERAPEUTIC USES—Anon., Thomas Oliver, v. A-7.

AFRICAN FEVER, REMITTENT—Robert Reilly, i. H-62.

AGARICINE—AGARIC ACID, THERAPEUTIC USES—W. T. Thackeray, Pribram, v. A-7; Hofmeister, v. A-8.

AIR, HYGIENE OF—Lancereaux, Acad. de Méd. de Paris, Vallin, Léon Colin, Brown-Séquard and d'Arsonval, P. de Pietra Santa, anon., Weinshurst, v. F-10; Siemens, v. F-11.

ALBUMINURIA—
  ETIOLOGY—Pavy, W. J. Tyson, Saunby, Drysdale, Gairdner, Eddison, Bisbee, Ruttan, Barrs, Semmola, ANNUAL 1889, Johnson, iv. K-10; Malfatte, Klemperer, Pavy, Leube, Van Noorden, Dickinson, iv. K-11; Dickinson, Arthaud and Butte, iv. K-12; Moxon, Johnson, Lucas, Fox, Dukes, Stirling, Talamon and Lecorché, ANNUAL 1889, iv. K-13; Lantos, Peter, Taneyhill, Leyden, André, Ekkert, iv. K-14; Martinez, Peter, Semmola, iv. K-15; Ralfe, Wiley, Craig, Rendu, iv. K-16.

ALCOHOL—Mohilansky, Manassein, v. B-2; Claude Bernard, Kretschy, Richet, Lever, Petit and Semerie, Gluzinski, V. A. Manassein, Schmiedeberg, Boecker, v. B-3.
  THERAPEUTIC USES — J. M. Farrington, Alëxëi M. Mohilansky, anon., v. A-8; C. L. Dodge, v. A-9.

ALCOHOLIC INEBRIETY—Kempf, Haller, Haigh, Crespi, Terry, Bird, Wright, Atchison, Carson, Coleman, Mosler, Rochard, Crespi, Mann, Lancereaux, Cohn, Porritt, iv. I-1; Chenery, Tuke, Skae, Clouston, iv. I-2.
  PATHOLOGY — Payne, Harley, L. Beale, Mackenzie, Mott, Dickinson, Buzzard, Pitt, Findley, Savage, Sharkey, Hadden, Ormerod, O'Conner, Pearson, iv. I-3; Hadden, Ormerod, Mott, Sharkey, Wernicke, Thomsen, Suckling, iv. I-4; Payne, iv. I-5.
  RELATION TO CRIME — Internat. Congr. Paris, iv. I-5.
  RESPONSIBILITY IN—Internat. Congr. Paris, iv. I-6.
  STATISTICS — Prince Rubempré, Petithan, iv. I-6.

GENERAL INDEX.

Allyl hydrobromata, therapeutic uses v. A- 11
tribromide (tribromhydrin, tribrompropenyl), therapeutic uses.....v. A- 11

Alopecia.....iv. A- 29
areata.....iv. A- 29

Amenorrhœa.....ii. F- 46

Amido-benzoic acid group.....v. B- 4
meta-amido-benzoic acid.....v. B- 4
ortho-amido-benzoic acid.....v. B- 4
para-amido-benzoic acid.....v. B- 5

Ammonia, therapeutic uses.....v. A- 11

Amputations.....iii. G- 1
general considerations—mortality.....iii. G- 1
secondary hæmorrhage.....iii. G- 1
multiple.....iii. G- 2
rare cases.....iii. G- 2
special amputations.....iii. G- 2
ankle.....iii. G- 4
foot.....iii. G- 4
hip-joint.....iii. G- 3
interscapulo-humeral, indications.....iii. G- 2
leg.....iii. G- 3

Amputations, excisions, and plastic surgery—diseases of the joints.....iii. G- 1

Amyl hydrate, therapeutic uses...v. A- 12

Amylene hydrate, toxic effects....v. A- 66

Anæmia, infantum pseudoleucæmica.....ii. E- 12
pernicious.....ii. E- 8
etiology and pathology.....ii. E- 8
treatment.....ii. E- 11
traumatic.....ii. E- 20

Anæsthetics.....iii. P- 1
causes of death.....iii. P- 2
effect on respiration.....iii. P- 2
in dentistry.....iii. J- 10
mode of action.....iii. P- 2
resuscitation from.....iii. P- 3
value of variety.....iii. P- 1

THERAPEUSIS.

Alcoholic Inebriety (*continued*).

Delirium Tremens.
Chloral hydrate, gr. xx (1.30 grm.) ev. 3 hrs., v. A-31; sulphonal, gr. lx (4.0 grm.), v. A-130.

Incurable Cases.
Substitute opium habit, iv. I-10.

Aliments.
Cocoa-nut butter; pea-soup; boiled starch, v. A-9; meat suspended in water (1 to 5); beef-tea, cold (narcotic); gelatin capsules, containing extractives, fat, spices. and salt, to be dissolved in hot water, v. A-10; koumiss and kefir, v. A-11.

Alopecia.
Oint. of sulphur and hg. ammon., iv. A-29; sulphur and vasel. (1 to 10), iv. A-65.

Areata.
Favor nerve nourishment. Fats and phosphates, milk, crushed wheat, cream, and fish; strychn. and ac. phosphor. contin. Arsenic altern. with strychn.: Ol. morrh. cum phosphate. Stimul. dis. patches; sol. bichlor. to excite skin; ℞ Veratriæ, gr. v to x (0.32 to 0.64); adip., ℥j (31 grm.)—M. Ol. tiglii. Strong sol. ac. carbol. Acet. canthar. Capsic. stimula. applic., iv. A-30.

Amylene Hydrate, Toxic Effects.
Camphor, v. A-66.

Anæmia.
Albuminate of iron; tinct. ferri chlor.; sesquibromide of iron; citro-phosphate of iron, v. A-53. Oxygen inhala., v. A-10. Phosphated pepsin, v. A-104.

Pernicious.
Liq. arsenicalis, ♏iiss (0.15 c.cm.), ev. 3 hrs. Lavage (Sandoz method); arsenic [liq. Fowlerii, gtt. iij to xxx], ii. E-11.

Traumatic.
Transfusion saline sol. (¾ %) 1 pint (½ litre), ii. E-20. Warm saline sol. (1 to 240), ℥xviij (532 c.cm.); repeated, ℥xij (355 c.cm.), ii. E-21.

Anæsthetics, Syncope from.
Howard's meth. of extension of head and neck, iii. R-3; push forward lower jaw from behind and extend head moderately; pressure to back of tongue with spoon or fork; artif. respir.; tracheot.; intuba., iii. R-4. *Cocaine, local in dentistry*; liq. ammon. acetat. (1 tablesp.) and wine, iii. J-11; oil of cloves added to chloroform as prophyl., v. A-36.

Anchylostomum.
Thymol [gr. ss to v (0.03 to 0.33 grm.)], int. on empty stomach in early morn.; follow with iron, i. F-23.

Aneurism.

General.
Introduce foreign body into sac; copper and silver threads; horse-hair; laminaria tents. Laminaria tent with a fine silver wire in its canal placed in button-holed artery and sewed in with horse-hair suture. Electrolysis: Introduce coil of very fine wire and pass strong electr. current (50 milliamp.) 15 or 20 min. Needles introduced so as to touch lining of opp. wall, iii. I-3.

AUTHORS QUOTED.

Aliments—H. Lantener, John Montgomery, Dujardin-Beaumetz, S. T. Rorer, Th. Zerner, Ris, Debove, v. A-9; Charles M. Jessop, Thomas Laffan, Liebig, Hassall, anon., Quaglio, v. A-10; A. Béchamp, Germain Sée, Ad. Tscheppe, N. Russell, E. Krauss, Dinitch, v. A-11.

Alimentary Tract, Anomalies of—
Ileum—Leopold Hudson, Meckel, M. S. Kakeles, v. G-10; Loomis, Sutton, v. G-11.
Œsophagus—Melkus, Leven, Koslowsky, v. G-10.
Rectum and Anus—MacCormac, Kellar, Pritchard, v. G-11.

Allium Cepa, Therapeutic Uses—George Covert, v. A-11.

Allyl Hydrobromate, Therapeutic Uses—Anon., v. A-11.
Tribromide (Tribromhydrin Tribrompropenyl), Therapeutic Uses—Anon., v. A-11.

Alopecia—Allan Jamieson, Pontoppidan, iv. A-29.
Areata—Bulkley, iv. A-29.

Amido-benzoic Acid Group—Gibbs and Hare, v. B-5.

Ammonia, Therapeutic Uses—B. W. Richardson, v. A-11; Beverley Robinson, F.R.C.P., H. C. Wyman, Krakauer, John A. Henning, v. A-12.

Amputations—
General Considerations—
Mortality—Page, Adler, iii. G-1.
Secondary Hæmorrhage—Poland, White, iii. G-1.
Multiple—Ferguson, Frick, Messenger, Keen, Stephens, Allen, Alexander, Banker, Heath, Hubert, Williams, iii. G-2.
Rare Cases—Maddin, McBurney, Montennis, Wyeth, Croncher, Thornton, Richardson, iii. G-2.
Special Amputations—
Ankle—Adamson, Syme, Keetley, Diakonoff, Rasoumousky, Eiselsberg, iii. G-4.
Foot—Helferich, Chopart, Milroy, Forbes, iii. G-4.
Hip-joint—Post, Wells, Ashhurst, Murdock, Cummins, Poppert, iii. G-3.
Interscapulo-Humeral—Chavasse, Parkes, Lange, May, iii. G-2.
Leg—Hudson, Cathcart, Annandale, Fisk, iii. G-3; M. Price, iii. G-4.

Amputations, Excisions, and Plastic Surgery—Diseases of the Joints—P. S. Connor, iii. G-1.

Amyl Hydrate, Therapeutic Uses—J. von Mering, v. A-12.

Amylene Hydrate, Toxic Effects—Dietz, v. A-66.

Anæmia, Infantum Pseudoleucæmica—Von Jaksch, ii. E-12.
Pernicious—
Etiology and Pathology—Wm. R. Graves, Weigert, Earl, Purser, Müller, ii. E-8; Henry. W. Russell, F. Walker Mott, W. Hunter, Critzman, ii. E-9; Addison, Lépine, Lichtheim, J. Bartels, Annual 1889, Byron Bramwell, ii. E. 10.
Treatment—Broadbent, H. Meyer, Sandoz, Westphalen, Suckling, ii. E-11.
Traumatic—E. D. Martin, Miles, ii. E-20; A. R. Anderson, Wright, ii. E-21.

Anæsthetics—J. M. Barton, Lawrence Wolff, iii. P-1.
Causes of Death—Benjamin Howard, iii. P-2; Martin and Hare, iii. P-3.
Effect on Respiration—P. Langlois and C. H. Richet, iii. P-2.
In Dentistry—F. R. Cruise, Bowman McCleod, Dudley Buxton, Frederick Hewitt, G. H. Bailey, Biggs, iii. J-10; C. R. Illingworth, Vasili P. Gretchinsky, iii. J-11.
Mode of Action—Högyes, iii. P-2.
Resuscitation from—Howard, Martin and Hare, iii. P-3; Foulis, Weir, iii. P-4.
Value of Variety—Hewitt, Annual 1889, iii. P-1.

GENERAL INDEX.

Anatomy..................................v. J- 1

Anchylostomum..........................i. F- 22

Aneurism...................................iii. I- 1
  diagnosis................................iii. I- 2
  etiology and pathology ....iii. I- 1
  treatment.................................iii. I- 1

Aneurismatoscope, Schnell's.........i. B- 6

Aneurisms, aortic..........................i. B- 5
  descending aorta, diagnosis....i. B- 6
  rupture into œsophagus..........i. B- 8
    into pulmonary artery.........i. B- 7
    into superior vena cava.......i. B- 6
  syphilitic.................................i. B- 5
  treatment.................................i. B- 8

Angina pectoris...........................i. B- 49
  diagnosis.................................i. B- 51
  electricity in...........................v. C- 10
  etiology and pathology............i. B- 49
  prognosis.................................i. B- 51
  treatment.................................i. B- 52

Angioneurotic œdema..................ii. C- 51

Anhalonium Lewinii — anhalonine,
    therapeutic uses...............v. A- 12

Anilides......................................v. B- 8
  formanilide...............................v. B- 5
  methylacetanilide......................v. B- 5
  methylformanilide.....................v. B- 5

Aniline and toluidine...................v. B- 6

Anisic acid—methylic ether of para-
    oxy-benzoic acid, therapeutic
    uses..v. A- 12

Anomalies. of the alimentary tract.v. G- 10
  of the extremities....................v. G- 15
  of the genito-urinary system...v. G- 11
  of the head and thorax..........v. G- 6
  of the heart and circulatory sys-
    tem..v. G- 8

Anosmia.......................................iv. D- 20

Anthrarobin, in skin diseases.....iv. A- 50
  therapeutic uses.....................v. A- 13

THERAPEUSIS.

Aneurism (*continued*).
  Aortic.
    Lam. tent with fine silv. wire in its canal; suture in with horse-hair, iii. I-3. Symptomatic, antipyr. hypod. for *pain* or *insom.*, i. B-8; pot. iod. for *syph. cases;* electric. in paral. of recur. laryng. nerve.; dorsal decub. and pot. iod.; Loretta's meth., with electrol.; simultan. lig. of com. carot. and subclav.; spontaneous cure, i. B-9.
  Limbs.
    Total extirpation or ablation, iii. I-4.
  Thoracic.
    Galvano-puncture, iii. I-3.

Angina Pectoris.
    Galvaniza. of sympathetic, left side pref., v. C-10; pot. iod. for 3 or 4 yrs., gr. xlv to lx (3.0 to 4.0 grm.) daily, suspend for 8 to 10 days each month. *In rh. cases*, sod. salicyl. *In some others*, loc. or genl. revulsion, blist., massage, sulphur baths; rest, even temp., alimentary hygiene, i. B-52; iodides, inhal. of pyridine [gtt. ij to v], antipy. hypod., i. B-58; strophanthus [tinct. 1-20, gtt. x to xx], i. B-60; strophanthine (?), v. A-128.

Anosmia.
    Syphilitic, specif. treat., cleansing, grad. exercise with subst. of diff. odorif. powers. *If hypertroph. rhinitis*, loc. treat., iv. D-20.

Anthrax.
    No system. remed.
  Local.
    (As malignant pustule), use attenuated virus as prophyl. against genl. infect., ac. carbol., spray or hypod.; crucial incis.; pure ac. carbol. to surf.; Condy's fluid hypod.; ac. carbol., ol. cajuput., quin., sod. salicyl. int. Also, ℞ Ac. carbol. gr. vij to ss (0.50 grm.); aq., glycerin., āā ʒiiss (10.0 grm.)—M. Sig.: Inject about affected spots, iii. K-18. Corros. subl. to infect. spot, gr. xx (1.3 grm.) as caust.; act. caut., fol. by pulv. corros. subl., iii. K-19; pulv. ac. boracic., v. A-24.

Antipyrin, Toxic Effects.
    Stimulants, v. A-18.

Antrum, Diseases.
  Empyema.
    Depress head to evac. abscess; hydrogen perox. glycozone (hydrog. perox. and glycerin.); explor. punct. below surf. turb. bod. with fine canula, preceded by applica. of cocaine (20%); if pus, free drain. through an alveolus, silver tube in.; penetra. from inf. meat., ac. boric., syr., insuffl. iodof.; open on ext. side of maxilla above alveol., large opening, thor. irriga., iv. D-33.
  Tumors, Cystic.
    Ext. incis., removal, iv. D-34.

Anus, Imperforate.
    Form artif. anus with end of rectum, ii. L-22.

Aphonia, Following Pertussis, Measles, and Scarlatina.
    Galvanism and static electr., v. C-11.

AUTHORS QUOTED.

Anatomy—William S. Forbes, v. J-1.

Anchylostomum—John D. Macdonald, Eichhorst, i. F-22; Macdonald, Kynsey, James B. Hogg, Surgeon-Major Oswald Baker, Lutz, i. F-23.

Aneurism—
  Diagnosis—Anon., iii. I-2.
  Etiology and Pathology—Delbet, Thoma, Bramwell, iii. I-1; Klotz, Kaufmann, Altmann, Zahn, Meacham, Rosenheim, Terrier, iii. I-2.
  Treatment—Litten, iii. I-2; Senator, Ewald, Heidenhain, Philippe, Stimson and Abbe, Bramwell, Macewen, iii. I-3; Delbet, Trélat, Mollière, Boeckel, Lucas-Championnière, Reclus, Verneuil, Kirmisson, Teale, Jackson, Aetius and Paulus Ægineta, iii. I-4.

Aneurisms, Aortic—
  Descending Aorta, Diagnosis—Ferdinand Schnell, i. B-6.
  Rupture into Œsophagus—A. J. Sprague, i. B-8.
    into Pulmonary Artery—F. P. Henry, i. B-7; Garland, Thurman, i. B 8.
    into Superior Vena Cava—Richard Sisley, i. B-6; Libson, Gairdner, Arkle and Bradford, i. B-7.
  Syphilitic—Mauriac, Byron Bramwell, Dreschfeld, Lancereaux, Lecorché, Talamon, H. M. Briggs, i. B-5.
  Treatment—Litten, i. B-8; Ewald, Senator, Kerr, Loretta, F. F. Meriwether, Vogel, Esmarch, Neuber, i. B-9.

Angina Pectoris—
  Diagnosis—Huchard, i. B-51.
  Etiology and Pathology—Potain, i. B-49; Peter, Mollière, Budor, Adolph Ott, i. B-50.
  Prognosis—Huchard, i. B-51; Heberden, Fothergill, Hoffman, Gintrac, i. B-52.
  Treatment—Huchard, i. B-52.

Angioneurotic Œdema—Smith, Widowitz, Krieger, ii. C-51.

Anhalonium Lewinii—Anhalonine, Therapeutic Uses—S. F. Landry, Lewin, v. A-12.

Anilides—Binet, Prevost, v. B-5.

Aniline and Toluidine—Wertheimer and Meyer, v. B-6; Jaffe and Hilger, v. B-7.

Anisic Acid—Methylic Ether of Para-oxybenzoic Acid, Therapeutic Uses—Antonio Curci, v. A-12.

Anosmia—Massei, Fiano, Felici, iv. D-20.

Anthrarobin—
  in Skin Diseases—Liebermann, Behrend, Bronson, Schwimmer, iv. A-50.
  Therapeutic Uses—Rosenthal and Köbner, Rosenthal, Th. Weyl, v. A-13.

Anthrax—
  Clinical—Hoffmann, Reboul and Répin, anon., Johnstone, iii. K. 17; Troquart, Murray, Sabatier, iii. K-18.
  Etiology—Bouchard, Lingard, Metschnikoff, Behring, Schmidt-Mühlheim, iii. K-15; Chauveau, Petruschky, Foà and Bonome, iii. K-16; Hankin, Chamberland, iii. K-17.
  Treatment—Hoffmann, Boggs, Verneuil, Johnstone, iii. K-18; Troquart, Murray, Woolmer, iii. K-19.

Anthropotoxine—Anon., Du Bois-Reymond, v. B-7.

Antiaris Toxicaria, Active Principles of—H. W. Bettenk, v. A-13.

Antimony, Poisoning by—H. W. Littlejohn, v. A-13.

Antipyrin—Crolas and Hugounenq, v. B-7; Batten and Bokenham, v. B-8; Tschisch, v. B-9.
  Therapeutic Uses—Dujardin-Beaumetz, A. Crombie, v. A-13; Edward Rondot, G. Leubuscher, Sonnenberg, v. A-14; E. T. Bruen, Franz Tuczek, Jules Simon, v. A-15; Orial, Hénocque, Saint-Germain, R. Robinson, H. Huchard, Schuerig, Haig, Sée, Dujardin-Beaumetz, Panas, Robin, Grandclément, v. A-16;

GENERAL INDEX.

Anthrax, clinical.............................iii. K- 17
  etiology...iii. K- 14
  treatment.......................................iii. K- 18

Anthropotoxine, therapeutic uses..v. B- 7

Antiaris toxicaria, active principles of.....................................v. A- 13

Antimony, poisoning by..............v. A- 13

Antipyrin......................................v. B- 7
  therapeutic uses........................v. A- 13

Antiseptic ointment and paste.....iii. Q- 11

Antiseptic surgery.......................iii. Q- 1
  dry methods and dressings...iii. Q- 12
  pocket-case...........................iii. Q- 3
  surgical table.........................iii. Q- 14

Antiseptics, inhibitory action of..iii. Q- 4
  new preparations and combinations.......................................iii. Q- 6
  relative germicidal value....iii.. Q- 4

Antrum, diseases.........................iv. D- 32
  empyema...................................iv. D- 32
  syphilis.....................................iv. D- 34
  tumors......................................iv. D- 34

Anus, imperforate.........................ii. L- 22

Aphasia and allied states (see Brain, diseases.............................ii. A- 27

Aphonia, electricity in.................v. C- 11

Apomorphine, therapeutic uses....v. A- 19

Appendicitis — typhlitis—perityphlitis.......................................iii. C- 36

Areca-nut—arekaine....................v. B- 10

Arsenic, poisoning by....iv. J- 18, v. A- 19

Arsenite of copper, therapeutic uses v. A- 21

Arteries and veins, diseases and injuries.......................................iii. I- 1

Arteries, diseases..........................i. B- 1
  abdominal aorta......................iii. I- 8
  air, entrance into circulation...i. B- 3
  arterial murmurs......................i. B- 2
  arterio-sclerosis and plethora...i. B- 1
  diseases and injuries..............iii. I- 4
  elasticity of healthy and diseased arteries.......................................i. B- 3
  fatty embolisms, treatment.....i. B- 4
  head and neck.........................iii. I- 5
  innominate.............................iii. I- 7
  lower extremity......................iii. I- 11
  pelvic vessels.........................iii. I- 9
  thoracic aorta........................iii. I- 7
  upper extremity......................iii. I- 9

THERAPEUSIS.

ARTERIES, DISEASES.
  FATTY EMBOLISMS.
    Card. ton. and diuret., i. B-4.
ASCARIS.
    Santoninoxim [gr. iij to xv (0.20 to 1.0 grm.)], i. F-20.
ASCITES.
  ELECTRICAL.
    Faradiza., when due to port. obstruct., or affect. of liver, spleen, and periton.; in pericard., i. D-13; interrupt. curr. 10 to 15 min. sitting., best preced. by tapping, i. D-14.
  MEDICINAL.
    In cirrhos. of liver: ℞ Calomel, gr. ij (0.13 grm.); digital., gr. iij to iv (0.2 to 0.26 grm.)—M. Sig.: Ev. 3 hrs. for 1 wk. Continual drainage, silver tube in abd. wall, left in 6 mos. Exclusive milk diet and iron, digital., squill, and junip. powd., warm cloth., hot baths, occas. purg., i. D-14; drink ascitic fluid, ℥viij (250 c. cm.), i. D-15; caffeine and paraldehyde combined, v. A-25; cynara scolymus, v. A-50; digitalin, amorph., gr. 1-20 to 1-16 (0.003 to 0.004 grm.); cryst. d., gr. 1-64 (0.001 grm.), v. A-50; glucose, ℥iij¼ (100 grm.), daily, v. A-54; calomel, gr. iij (0.195 grm), 2 t. d., add opium, gr. 1-7 (0.009), if purging, v. A-61; manzanillo, v. A-89.
ASPHYXIA.
  BY ILLUMINATING GAS.
    Nitro-glyc., gr. 1-50 (0.001), hypod., v. A-95; oxygen inhala., v. A-102.
  IN GENERAL.
    Oxygen inhala., q. s., v. A-102.
ASPHYXIA NEONATORUM.
    Mouth to mouth inflation, nostrils closed, mod. degree of press. at first. Inversion, child lying on back, head down, on forearm of operator, whose fingers are hooked in its shoulder, ii. L-11. Duke's method: If funis pulsating strongly, wait until almost ceased, then divide it. Raise infant, turn it face downward, with arms and legs pendant, allow thorax to rest across the open palm of hand, insert index-finger well into the pharynx, to establish "atmospheric highway," then change child to r. hand so that tips of fingers, resting near the heart will at once detect any increase in its action. Egon Braun's appar. In Schultze's meth., as soon as for. matter reaches post. nares and mouth, remove artific. by cath., ii. J-48; insufflation, ii. J-49.
ASTHMA.
  DURING PREGNANCY.
    Viburnum prunif. [ext. fld. 1 to 2 teasp.] used constantly, i. A-77.
  IN ADULTS.
    Centesimal *sol. nitro-glycerin* 2 to 5 drops, when no emphysema and sound heart; betw. attacks, quin., arsenic, ol. morrh., i. A-74: *caffein citrate*, gr. j to v (0.06 to 0.3 grm.), in aq. ferv.; *cocaine*, gr. 1-6 (0.01 grm.), in tablets: *quebracho* [fl. ext. ʒj (4 grm.) ev. hr.]: ℣ *hypersecretion*, *tinct. belladon.*, gtt. xv q. 4 hrs.; ℣ *dimin. secretion*, *pilocarpin*, gr. ¼ (0.016 grm.),

AUTHORS QUOTED.

ANTIPYRIN (*continued*).
    T. Haven Ross, Ollivier, Ferrand, P. Vigier, H. C. Wood and John Marshall, John A. Miller, G. Evans, S. E. Henschen, Hermann Mueller, v. A-17; Geigel, D. C. G. Bourns, C. S. Purdon, Thomas Wingrave, H. Huchard, v. A-18; William P. Northrup, Berger, v. A-19.
ANTISEPTIC OINTMENT AND PASTE—Gottstein, Socin, iii. Q-11.
ANTISEPTIC SURGERY—Wheeler, Burns, Schuler, Charon, iii. Q-1; Primrose, Anagnostakis, Hippocrates, Galen, Tucker and Burrell, anon., iii. Q-2; Edington, iii. Q-3.
  DRY METHODS AND DRESSINGS—Landerer, Jordan Lloyd, Gamgee, iii. Q-12; A. Ulrik, Ehlers, iii. Q-5.
  POCKET-CASE—Dawbarn, iii. Q-3.
  SURGICAL TABLE—Lagnaite, iii. Q-14.
ANTISEPTICS—
  INHIBITORY ACTION OF—McCaskey, iii. Q-4.
  NEW PREPARATIONS AND COMBINATIONS—Saloman, Sir Joseph Lister, Wade, Fränkel, Thomán, Bernardy, Girard, iii. Q-6; Hare, Woodhead, Hart, Trélat, Croskey, Poisson, Broddus, Bernays, Bogomoloff, Banks, Beach, iii. Q-7; Nobili, Cadéac, Ollier, Diday, Buchner and Segall, Tilanus, iii. Q-8; Hünermann, Behring, Baumgarten, Eisenberg, Seidel, Hörmeke, Kortüm, Bunsen, Rausche, Amon, Prutscher, Purjesz, Späth, Pieskoff, Roux, Diakonoff, Lenevitch, Baumgarten, iii. Q-9; Fröhner, Prince, Eller, Corner, Dannheisser, Iakimovitch, Leshtchinsky, Uspensky, iii. Q-10.
  RELATIVE GERMICIDAL VALUE—Edington, Kingzett, Weeks, Semmola, Polli, Foote, Geppert, iii. Q-5; Fränkel, Thomán, iii. Q-6.
ANTRUM, DISEASES—
  EMPYEMA—Felix Semon, Jelenffy, Zuckerkandl, Heryng, Voltolini, Cozzolino, iv. D-32; Bayer, J. H. Bryant, William Carr, Moritz Schmidt, Friedländer, A. W. Baker, iv. D-33.
  SYPHILIS—Trifiletti, Massei, Hermet, iv. D-34.
  TUMORS—J. M. Swan, Gérard Marchand, Gouguenheim, iv. D-34.
ANUS, IMPERFORATE—Vincent, ii. L-22.
APOMORPHINE, THERAPEUTIC USES—George Westby, H. A. Hare, Talfourd Jones, John Brown, I. G. Stevens, v. A-19.
APPENDICITIS — TYPHLITIS — PERITYPHLITIS —Weir, iii. C-37; Jacobus, Wylie, Abbe, iii. C-38; Bull, iii. C-39.
ARECA-NUT—Bombelow, Jahns, v. B-10.
ARSENIC, POISONING BY—Jonathan Hutchinson, Frederich Kovács, A. F. Holt, A. Freer, W. M. Leszynsky, v. A-19; James Putnam, anon., S. W. Abbott, anon., F. A. Huckiger, Bettendorf, R. Krehl, Brouardel, M. Pouchet, v. A-20; Brouardel, Maybrick, iv. J-18.
ARSENITE OF COPPER, THERAPEUTIC USES—Boardman Reed, John Aulde, v. A-21.
ARTERIES AND VEINS, DISEASES AND INJURIES—John H. Packard, iii. I-1.
ARTERIES, DISEASES—
  ABDOMINAL AORTA—Tufnell, Mutis, Ross, Hood, iii. I-8; Harris, Drewry, O'Conor, Besançon, Loomis, Toussaint, iii. I-9.
  AIR, ENTRANCE INTO CIRCULATION—H. A. Hare, i. B-3.
  ARTERIAL MURMURS—Sidney Phillips, B. W. Richardson, i. B-2.
  ARTERIO-SCLEROSIS AND PLETHORA—G. Sée, i. B-1.
  DISEASES AND INJURIES—
  ELASTICITY OF HEALTHY AND DISEASED ARTERIES—Thoma, Kaefer, i. B-3.
  FATTY EMBOLISMS—Grube, Zahn, Rosenheim, Senator, i. B-4: Pitt, i. B-5.
  HEAD AND NECK—Markoe, Stimson, iii. I-5; Wyeth and Lange, Urasoff, Lloyd, Catuffe, Clark, Sutherland, Treves, Mac Cormick, Deaver, Rydygier, iii. I-6.
  INNOMINATE—Warren, Pettus, Spencer, iii. I-7.

GENERAL INDEX.

Ascaris..........i. F- 19

Ascites..........i. D- 13
  treatment..........i. D- 13

Aseptic suit..........iii. Q- 11

Asphyxia, neonatorum....ii. J-48, ii. L- 11

Asthma..........i. A- 71
  etiology..........i. A- 72
  occurrence..........i. A- 71
  pathology..........i. A- 71
  treatment..........i. A- 74

Astringents..........v. B- 10

Athetosis (see Brain, diseases)..........ii. A-24, ii. C- 65

Athrepsia..........ii. L- 13

Atropine..........v. B- 11
  poisoning by..........iv. J- 19
  therapeutic uses (see Belladonna) v. A- 21

Auditory sensations, localization.iv. C- 41

Aural hæmorrhage and head injury iii. A- 26

Australia, vital statistics..........v. E- 29

Bacillus—aphidæ..........iv. L- 26
  capsulatus..........iv. L- 8
  carcinomata..........iv. L- 10
  cholera..........iv. L- 7
  coffee, non-germicide..........iv. L- 11
  corn-stalk disease..........iv. L- 9
  diphtheria..........iv. L- 12
  enteridis..........iv. L- 6
  erysipelas..........iv. L- 12
  fever..........iv. L- 13
  gonococcus..........iv. L- 13
  green sputum..........iv. L- 13
  gregarineen..........iv. L- 13
  heminecrobiophilus..........iv. L- 6
  hernia..........iv. L- 17
  lactis aërogenes *et al.*..........ii. L- 12
  maidis..........iv. L- 20
  malaria..........iv. L- 19
  mesentericus vulgatus..........iv. L- 21
  milk and blue milk, carriers..iv. L- 21
  moor-fowl disease..........iv. L- 20
  motility..........iv. L- 20
  murisepticus pleomorphus.....iv. L- 29

THERAPEUSIS.

Asthma (*continued*).
  with *morphine*, gr. ¼ (0.016 grm.), hypod. *Dosimetric system* (hyoscyam., strych., arsen., digital., aconitia): ℞ *Acidi oxalici*, ʒss (1.94 grm.); syr. aur. cort., ℥ij (62 grm.); infus. theæ, ℥vj (186 grm.) —M. S.: Tablesp. ev. hr. till relieved. *Early supper*, empty stomach; *avoid* sugar, starch, potatoes, *if flatulence*. *Lobeline*, gr. ¾ to vj (0.048 to 0.39 grm.), p. r. n. per orem and hypod., i. A-75. *Morphia*, hyp.; gargle or spray of *borax* (concent. sol.), with few drops liq. hydrarg. perchlor.; *quin.*, gr. xv (1 grm.); ammon. carb., sod. acet., potass. sod., nitrat., stimulants, bellad.; *menthol*, (20% sol. in ol. olivæ), inhala.; antipyrin; nasal bougies; Grunert's chair, i. A-76; paraldehyde, ½ teasp., i. A-77. Adhatoda justicia, fol. pulv., gr. x (0.65 grm.), t. i. d.; tinct. (5 to 32), ʒss (2 grm.), t.i.d.; smoke leaves in pipe, v. A-7; allyl tribromide, gtt. v, v. A-11. Antipyrin, v. A-14; menthol in ol. oliv. (20%), few drops by inhala., v. A-91; oxygen inhala., v. A-102; pure petroleum, v. A-105; pyridin, ʒj (4 grm.), in iron spoon over lamp in pat. room; inhale vap., v. A-111; aspidospermine, gr. 1-500 to 1-100 (0.00015 to 0.0007 grm.); quebracho, v. A-114; strophanthus in bronchial asthma, v. A-126; sulphonal, v. A-129, 131.
 in Children.
  Quin., gr. v to vij (0.3 to 0.4 grm.), ev. 10 min. for 3 doses, 5 or 6 hrs. before paroxysms, i. A-74.
 Sexual.
  Remove cause, i. A-77.

Athetosis.
  Galvanism, stabile curr.; pot. brom., ʒiss (6 grm.), daily, with stabile appl. of galv. curr. of 2 milliamp., pos. pole on brachial plex., neg. pole on neck, ii. C-65.

Atropine, Poisoning by.
  Lavage of stomach; hot, strong coffee; morph., gr. ss (0.03 grm.), hypod.; caffeine hypod., iv. J-20.

Bacteriuria.
  Cleanliness: render bladder aseptic by antisept. inject.; ac. salicyl. and ac. borac. internally, iv. K-56.

Belladonna, Atropine, Toxic Effects.
  Hyoscin.; emesis, v. A-22.

Benzole, Toxic Effects.
  Lavage of stomach; brandy and ammon., v. A-22.

Beriberi (Kakke).
  Faradiza. of phrenic nerve, ii. C-16.

AUTHORS QUOTED.

Arteries, Diseases (*continued*).
  Lower Extremity—Stimson, Sibthorpe, Reid, Wyman, Huger, iii. I-11; Deaver, Ormsby, Mackenzie, Reid, Weiss, Sagrandi, Brun, Reclus, Delbet, Trélat, iii. I-12; Demons, Princeteau, Hunt, Hopkins, Richards, Michael, Ballance, Lister, Cauchois, White, Bell, Anderson, iii. I-13; Battle, Wilkinson, Arnaudet, iii. I-14.
  Pelvic Vessels—Barker, Lucas, Küstner, iii. I-9.
  Thoracic Aorta—Suckling, Ely, Messenger, Troup, iii. I-7; Högerstedt, Bramwell, Daraignes, Rumpf, Brieger, Rie, iii. I-8.
  Upper Extremity—Morozoff and Michailoff, iii. I-9; Barton, Valladares, Saboïa, Brown, Trélat, Cellier, Huntington, Lucas-Championnière, Stenzel, Pluyette, Mott, iii. I-10; Beach, Tellier, Poncet, anon., iii. I-11.

Ascaris—Coppola, i. F-19; Cannizaro, Poncet, H. Coutagne, Fitzmaurice, Muselli, Estebano Borrero Echeverria, i. F-20.

Ascites—
  Treatment—Muret, Kauffmann, i. D-13; Muret, Erb, Schwass, Hicks, Chardhoory, i. D-14; Duhamel, i. D-15.
  Aseptic Suit—Rollins, iii. 2-11.

Asphyxia, Neonatorum—Alexander Duke, Egon Braun, Doe, Nikitin, Rabinovitch, Schultze, ii. J-48; Nikitin, F. H. Champneys, ii. J-49; O'Dwyer, Reynolds, ii. L-11.

Asthma—
  Etiology—Da Costa, Robinson, Knight, Bosworth, Schmidtborn, Van Valzah, Pawinski, Berkart, Curschmann, Peyer, i. A-73.
  Occurrence—Moncorvo, i. A-71.
  Pathology—Cameron, i. A-71.
  Treatment—Grancher, Woodbury, anon., i. A-74; Allbutt, Poulet, Lanphear, Silva, Nunès, i. A-75; Berkart, Illingworth, Jores, Duenas, Zipp, Hegar, Carl Grunert, i. A-76; Scott, Peyer, Davis, i. A-77.

Astringents—Heintz, v. B-10.

Athetosis—Eulenburg, Krafft-Ebing, Sabrazès, ii. C-65; von Bonsdorff, ii. C-66.

Atropine—Rummo, v. B-11.
  Poisoning by—Gebbard, iv. J-19; Springthorpe, iv. J-20.

Auditory Sensations, Localization—A. Gouguenheim, Maneuvrier, iv. C-41.

Aural Hæmorrhage and Head Injury—Bennett, iii. A-27.

Australia—
  Vital Statistics—H. N. McLaren, v. E-29; Rabbi Davis, v. E-31.

Bacillus—
  Aphidæ—Krassilstchek, iv. L-26.
  Capsulatis—Pfeiffer, Gram, iv. L-8; Friedländer, Passet, iv. L-9.
  Carcinomata—Verneuil, iv. L-10; Thoma, anon., Hanau, Braun, iv. L-11.
  Cholera—Loewenthal, Kitasato, Uffelmann, Petri, Schenk, Finkler-Prior, Pfeiffer and Nocht, Gamaleia, iv. L-7; E. Klein, Rosenfeld, iv. L-8.
  Coffee, Non-germicide—Luederitz, iv. L-11.
  Corn-stalk Disease—Billings, iv. L-9; Southern, iv. L-10.
  Diphtheria—Roux and Yersin, Loeffler, Zarniko, Chantemesse and Widal, iv. L-12.
  Enteridis—Gärtner, Karlinski, iv. L-6.
  Erysipelas—Traversa and Manfredi, iv. L-12.
  Fever—Roussy, iv. L-13.
  Gonococcus—Neisser, Schütz, iv. L-13.
  Green Sputum—Fricke, iv. L-13.
  Gregarineen—Pfeiffer, iv. L-13; Loeffler and Dammann, Weigert, iv. L-16.
  Heminecrobiophilus—Arloing, iv. L-6.
  Hernia—Clado, iv. L-17.
  Maidis—Cuboni, Paltauf and Heider, iv L-20.
  Malaria—Sacharoff, Ponfik, iv. L-19.
  Mesentericus Vulgatus—Vignal, iv. L-21.

GENERAL INDEX.

Bacillus (*continued*).
musk...iv. L- 21
of pneumonia...i. A- 56
phosphorescent...iv. L- 22
pleomorphism...iv. L- 22
pneumo-bacillus, Fränkel...iv. L- 22
pneumo-bacillus, Friedländer.iv. L- 22
pneumo-bacillus, staining...iv. L- 22
pneumo-enteritis, of pigs...iv. L- 23
pseudo-tuberculosis, of rodents iv. L- 26
puerperal fever...iv. L- 21
rabies...iv. L- 26
rauschbrand...iv. L- 26
red milk...iv. L- 20
scarlet fever...iv. L- 27
Scheibenzuber's...iv. L- 6
spiro-bacillus, Cienkowski...iv. L- 22
syphilis...iv. L- 29
tetanus...iv. L- 30
tuberculosis...iv. L- 30
detection...i. A- 22
physical properties...i. A- 45
typhoid...iv. L- 33

Bacteria—bacterium rosaceum metalloides...iv. L- 27
caries of teeth...iv. L- 34
cereals...iv. L- 11
earth...iv. L- 12
germicides and antiseptics...iv. L- 16
hypothetical treatment by...iv. L- 17
ice, relations...iv. L- 18
kephir...iv. L- 18
lung surface...iv. L- 18
mussel...iv. L- 21
oxidation...iv. L- 21
putrefying meat...iv. L- 26
saccharomyces kephir...iv. L- 18
saccharomyces lactis...iv. L- 29
salting meat, effect...iv. L- 27
septic, new forms...iv. L- 29
spores and granules in...iv. L- 28
stomach...iv. L- 28
umbilical cord...iv. L- 34
vaccine-vesicle...iv. L- 34
water and earth...iv. L- 34

Bacteriology...iv. L- 1
methods...iv. L- 1
coloring bacteria...iv. L- 1
culture media...iv. L- 3
cultures, preservation...iv. L- 2
manipulating chamber...iv. L- 1
milk, culture media...iv. L- 3
museum, formation...iv. L- 1
photo-micrography, uses...iv. L- 3
plate cultures, illustrations.iv. L- 1
stain for cilia and flagellæ..iv. L- 4
syringes, new...iv. L- 3
touraillon, culture medium.iv. L- 6

Bacteriotherapy...iv. L- 39

Bacteriuria...iv. K- 55

Balneology...v. D- 14
hydrotherapy, general considerations...v. D- 14
special balneo-therapeutics...v. D- 24

THERAPEUSIS.

Bladder, Female, Diseases.

Calculi.
Dilate urethra and remove calculus, ii. H-20.

Cystitis, Chronic.
Make a vesico-vaginal fistula or dilate urethra to size of index finger. If proliferating membr., remove with curette. Ac. carbol. applica. to bladder, controlled if necess. by cocaine, ii. H-21. Emmet's op., ii. H-22.

Foreign Bodies.
Vaginal sect. and removal; extract. through urethra, if possible, ii. H-21.

Incontinence Urinæ.
Grad. dilatation of bladder by inject. of water, ii. H-23.

Bladder, Male, Diseases.

Carcinoma.
Excis. of entire muc. membr., iii. E-22.

Cystitis, Tubercular.
Supra-pubic section; raclage: cauterization, iii. E-24.

Foreign Bodies.
Guyon's crochet; section, iii. E-20.

Incontinence of Urine.
Tinct. rhus. arom. up to gtt. xl, iii. E-20.

Tumors.
Papillomata, removal, i. G-37.

AUTHORS QUOTED.

Bacillus (*continued*).
Milk and Blue Milk, Carriers—Hirschberger, Scholl, iv. L-21.
Moor-fowl Disease—Klein, iv. L-20.
Motility—Ali-Cohen, iv. L-20.
Murisepticus Pleomorphus — Karlinski, Gram, iv. L-29.
Musk—Kitasato, iv. L-21.
Phosphorescent—Tollhausen and Lehmann, iv. L-22.
Pleomorphism—Metschnikoff, iv. L-22.
Pneumo-bacillus, Fraenkel — Banti, Gabbi, iv. L-22.
Pneumo-bacillus, Friedlaender — Petrone iv. 22.
Pneumo-bacillus, Staining—Gabbi, iv. L-22.
Pneumo-enteritis of Pigs—Galtier, iv. L-23; Cornil and Chantemesse, Cornil and Toupet, Koch, Loeffler and Schute, Salmon, Bollinger, Barbone, Oreste and Armani, Hueppe, iv. L-24; Bleisch and Fiedeler, Schutz, iv. L-25.
Pseudo-tuberculosis of Rodents—Pfeiffer, Gram, Bollinger, iv. L-26.
Puerperal Fever—Mironoff, Ernst, iv. L-21.
Rabies—Pasteur, iv. L-26.
Rauschbrand—Kitasato, iv. L-26.
Red Milk—Baginsky, Grotenfelt, iv. L-20.
Scarlet Fever—Raskina, iv. L-27.
Scheibenzuber's—Scheibenzuber, iv. L-6.
Spiro-bacillus Cienkowski — Metschnikoff, iv. L-22.
Syphilis—Kamen, Giacoli, Levy, iv. L-29.
Tetanus—Kitasato, Nicolaier, Belfanti and Pescarolo, iv. L-30.
Tuberculosis — Norderling, Pition and Roux, iv. L-30; Herman, Courmont, Solles, Stachastny, iv. L-31; Cornet, Maffuci, Spillman and Haushalter, Cornet, iv. L-32; Ernst, iv. L-33.
Typhoid—Chantemesse and Widal, Uffelmann, Janowski, Rodet, Karlinski, Uffelmann, iv. L-33.

Bacteria—
Bacterium Rosaceum Metalloides — Dowdeswell, iv. L-27.
Caries of Teeth—Galippe and Vignal, iv. L-34.
Cereals—Lehmann, iv. L-11.
Earth—Reimers, iv. L-12.
Germicides and Antiseptics—C. Paul, iv. L-16.
Hypothetical Treatment by—Semmola, iv. L-18.
Ice, Relations—Russell, iv. L-18.
Kephir—Beyerinck, iv. L-18.
Lung Surface—Buchner, Wyssokowitsch, iv. L-18.
Mussels—Lustig, iv. L-21.
Oxidation—Schulz, iv. L-21.
Putrefying Meat—Moulet, Nocard, iv. L-26.
Saccharomyces Kephir—Beyerinck, iv. L-18.
Saccharomyces Lactis—Adametz, Duclaux, iv. L-29.
Salting Meat, Effect—Forster, iv. L-27.
Septic, New Forms—Babes and Eremia, iv. L-29.
Spores and Granules in—Ernst, Delafield, Platner, Neisser, iv. L-28.
Stomach—Abelous, iv. L-28.
Umbilical Cord—Cholmogoroff, iv. L-34.
Vaccine-vesicle—Voitoff, iv. L-34.
Water and Earth—Grace C. Frankland, iv. L-34.

Bacteriology—Harold C. Ernst, iv. L-1.
Methods—
Coloring Bacteria—Anon., Gram, iv. L-1.
Culture Media—Van Puteren, Marly, iv. L-3; Plantamour, iv. L-4; Roux, iv. L-6.
Cultures, Preservation—Schill, Esmarch, Günther, iv. L-2.
Manipulating Chamber—Dixon, iv. L-1.
Milk, Culture Media—Van Puteren, Marly, iv. L-3; Plantamour, iv. L-4.
Museum, Formation—Kral, Czaplewski, iv. L-1; Annual 1889, Soyka, Schill, Esmarch, Günther, iv. L-2.
Photo-micrography, Uses — Fränkel, Pfeiffer, iv. L-3.

GENERAL INDEX.

Balsam of Peru, therapeutic uses..v. A- 21

Barium chloride, therapeutic uses..v. A- 21

Basedow's disease, electricity in ...v. C- 14

Beet-root (beta vulgaris), therapeutic uses..............v. A- 22

Belladonna—atropine, therapeutic uses..............v. A- 21

Benzole, toxic effects..............v. A- 22

Beriberi (Kakke)..............ii. C- 15

Betel-nut, habit..............v. A- 22

Betol, therapeutic uses..............v. A- 22

Bismuth..............v. B- 12
  toxic effects..............v. A- 23

Bismuth oxyiodide, therapeutic uses v. A- 23
  salicylate, therapeutic uses....v. A- 23

Bitters in gastric affections..........v. B- 12

Bladder, diseases..............i. G- 33
  tumors..............i. G- 37

Bladder, female, diseases............ii. H- 20
  calculi..............ii. H- 20
  foreign bodies..............ii. H- 20
  incontinence urinæ..............ii. H- 23
  reflex troubles..............ii. H- 22

Bladder, male, diseases..............iii. E- 18
  anæsthesia in..............iii. E- 18
  carcinoma..............iii. E- 22
  cystitis, microbian..............iii. E- 23
    tubercular..............iii. E- 23
  cystoscopy in..............iii. E- 19
  excision of mucous membrane..............iii. E- 21
  extirpation of bladder..........iii. E- 21
  foreign bodies..............iii. E- 20
  incontinence of urine............iii. E- 20
  new instruments—Guyon's crochet..............iii. E- 20
    Trendelenburg's table for supra-pubic cystotomy ...iii. E- 27
  rupture, intra-peritoneal......iii. E- 22
  stone and operations............iii. E- 20
  supra-pubic cystotomy ....iii. E- 25
  vesical prostatism..............iii. E- 28

Blood, action of snake-poison on...v. B- 47
  action of the liver on..............i. E- 1
  blood-plaques or blood-plates ii. E-2, v. I- 1

THERAPEUSIS.

Bone, Diseases.
Osteomyelitis.
Early incis., thorough clearing, with or without resection, p. r. n.

Femur.
If in up. end with separa. of shaft, use extens.; in lower end, avoid. press. on poplit. ves. from drain.-tube, bring ends up and so fasten that concav. looks to post. surf. of bone, iii. G-17.

Sacro-iliac Disease.
Medical.
General treatment to improve condit. of pat. *Counter-irritat.* if pain, lameness, or swelling without abscess; best is act. caut. *Mechan. rest* when no abscess, iii. G-14.

Surgical.
If abscesses, immed. rad. op.; if abs. extra-pelvic, incise and evac.; if intra-pelvic open above joint; when both extra- and intra-pelvic, open ext. one and enlarge open. betw. the two for rad. treat. Do not op. rad. through long sinuses; drainage alone not success. *After-treat.*, antisepsis, contin. rest, and extens. and pelvic belt if necess. If rad. op. is done, remove thoroughly all tuberc. matter, iii. G-15.

Tuberculosis.
Medical.
Inunct. of sap. virid., to spine, thighs and poplit. sp., 2 or 3 t. a wk., with rest., ol. morrh., etc., iii. G-12. Avoid

AUTHORS QUOTED.

Bacteriology (*continued*).
  Plate Cultures, Illustrations—Anon., iv. L-1.
  Stain for Cilia and Flagellæ—Lœffler, iv. L-4; Zettnow, Zeis, Schippang-Wehenkel, Leonhardt, Esmarch, Erlenmeyer, iv. L-5.
  Syringes, New—Strauss, Tavel, iv. L-3.
  Touraillon, Culture Medium—Roux, iv. L-6.
Bacteriotherapy — Cadogan-Masterman, iv. L-39.
Bacteriuria—Peyer, Ultzmann, iv. K-55; Schottelius and Reinhold, Doyen, Clado, iv. K-56; Russo-Giliberti and Dotto, Tyndall, Pasteur and Van Tieghem, Miquel, Leube, Flügge, Heraeus, Warrington, Clado, Hallé and Albarran, iv. K-57.
Balneology—
  Hydrotherapy and General Considerations—A. Frey, Robt. Baker, Grœdel, J. Jacobs, v. D-14; S. Baruch, v. D-15; Baruch, v. D-16; Ernest Brand, G. A. Peabody, A. A. Smith, M. Putnam Jacobi, G. B. Fowler, Jules Simon, v. D-17; G. Minges, C. Reinl, Annual 1889, v. D-18; Com. on Min. Waters of Am. Climat. Assn., v. D-19; Annual 1888, Com. Royal Med. and Chirurg. Society of England, E. Ludwig, v. D-20; C. Denison, F. A. Gooch, J. E. Whitefield, J. E. Blomfield, Ginder, v. D-21; P. K. Pel, L. D. Bulkley, v. D-22; De Pietra Santa, Gautrelet, Kisch, Lieber and Mohr, Kraus, Loiman, Jacob, Kleinwächter, v. D-23.
  Special Balneo-therapeutics—L. Lehmann, Dobieszewski, v. D-24; E. H. Kisch, Mazzotti, Wm. Bruce, v. D-25; Douglass, Kerr, S. Le Clercq, Niemeyer, v. D-26; Emil Pfeiffer, Morice, v. D-27; Paul Rodet, A. Manquat, Staub, G. Adams, v. D-28.
Balsam of Peru, Therapeutic Uses—Joh. Schnitzler, Binz, W. Bräutigam and E. Nowack, v. A-21.
Barium Chloride, Therapeutic Uses—Roberts Bartholow, v. A-21
Basedow's Disease—
  Electricity in—Danion, v. C-14; Rockwell, Danion, Foedern, v. C-15.
Beet-root (Beta Vulgaris), Therapeutic Uses—V. Idelson, Kazatchkoff, v. A-22.
Belladonna, Atropine, Therapeutic Uses—Lewis A. Stimson, Frank C. Bressler, v. A-21; Richard Neale, Collins, Mikhail I. Reich, W. G. Holloway, E. A. O. Travers, Baudon, anon., v. A-22.
Beriberi (Kakke)—Pekelharing and Winkler, Miura, ii. C-15; Annual 1889, Gueit, Couto, Morris, ii. C-16.
Benzole, Toxic Effects—C. Averill, v. A-22.
Betel-nut, Habit—L. Lewin, v. A-22.
Betol, Therapeutic Uses—Anon., v. A-23.
Bismuth—Hare, Dalché and Villejean, v. B-12.
  Toxic Effects — Balzer, Janecék, anon., v. A-23.
Bismuth Oxyiodide, Therapeutic Uses—Hugh Woods, Chassaignac, v. A-23.
  Salicylate, Therapeutic Uses—Ehring, v. A-23.
Bitters in Gastric Affections—Reichmann, Fortunatoff, Cheltsoff, Fabitski, Koshlakoff, Nothnagel and Rossbach-Riegel and Cheltsoff, Sjoquist, Uffelmann, v. B-13; Fabitski, v. B-14.
Black-water Fever—Robert Reilly, i. H-62.
Bladder, Diseases—
  Tumors—Vincent, Fenwick, Paul, Sym, Stokes, Cabot, Southam, i. G-37; Lamarque, Cabot, Englisch, Retzius, i. G-38.
Bladder, Female, Diseases—
  Calculi—Roberts, Yandell, Anderson, J. N. Bloom, Vance, Goodell, ii. H-20.
  Cystitis—More-Madden, Emmet, ii. H-21; Heywood Smith, Jessops, Teale, More-Madden, Goodell, Skene, Emmet, ii. H-22.
  Foreign Bodies—Hicks, ii. H-20; Dudley, J. W. Chambers, ii. H-21.
  Incontinence Urinæ—Sims, ii. H-23; Sims, Braxton Hicks, E. H. Fenwick, Boldt, Nisser, Küstner, Skene, McLean, ii. H-24.

GENERAL INDEX.

Blood (*continued*).
  coagulating ferments, action....v. I- 3
  corpuscles, number of, in human v. H- 3
  germicidal action of..............iv. L- 40
  hæmacytometer and hæmoglobinometer, value of............ii. E- 4
  hæmoglobin and oxyhæmoglobin v. I- 3
  intravascular coagulation by drugs..............................v. B- 51
  leucocytes, multiplication of..ii. E- 2
  leucomaines in......................iv. L- 30
  parasites in...........................ii. E- 3
  physiology of..........................v. I- 1
  pigment in, origin of..............ii. E- 1
  portal blood in the general circulation..............................ii. E- 3
  reaction of..................ii. E-1, v. I- 1
  red corpuscles, degenerative changes..............................v. I- 5
  red corpuscles, stromata of......v. I- 4
  venous congestion..................ii. E- 3

Blood and spleen, diseases of........ii. E- 1

Blood-letting, therapeutic uses.....v. A- 23

Blood-pressure, action of snake-poison on...v. B- 46

Blood-vessels, physiology ....v. I- 27
  innervation.............................v. I- 29
  vasomotor nerves, origin and course...v. I- 27

Boldo—boldoin, therapeutic uses..v. A- 24

Bone, diseases of..........................iii. G- 12
  growth.....................................iii. G- 18
    bone-grafts..............................iii. G- 19
  osteitis deformans.....................iii. G- 18
  osteitis syphilitica....................iii. G- 18
  osteomyelitis...........................iii. G- 15
    etiology and treatment......iii. G- 15
    leprosa....................................iii. G- 17
    mother-of-pearl workers....iii. G- 17
  pseudarthrosis..........................iii. G- 19
  sacro-iliac disease....................iii. G- 14
    treatment................................iii. G- 14
  senile changes in.......................ii. N- 1
  tuberculosis..............................iii. G- 12
    etiology and treatment......iii. G- 12
  tumors.......................................iii. G- 21
    actinomycosis..........................iii. G- 22
    exostosis.................................iii. G- 21
    malignant tumors....................iii. G- 22
    pearl tumors............................iii. G- 23
    rider's bone..............................iii. G- 22

THERAPEUSIS.

Bone, Diseases (*continued*).
  inject. of iodof. ether to children. Inject iodof. oil (1 to 5), parenchym.; ♏ xxx to 1 (2 to 3 c.cm.). Tannin in pulv. or sol. on gauze, and intern. Balsam. Peruv. (Landerer's meth.). ℞ Cupri sulph., p. 4; vaselin, p. 30—M. S.: Use ext. later, cupri. acet. neutr., gr. ⅓ (0.0216 grm.), intern. ℞ Naphthol, p. 1; camphor, p. 2—M. S.: Use ext. In *wounds*, use calomel (1 to 4000) instead of sublimate. Food, air, exercise, iii. G-13. Sea-water baths, v. D-18.

  Surgical.
  Arthrectomy; incis., scraping, caut. and drain., iii. G-14.

Brain, Diseases.

  Abscess.
  Localization, trephining, incision with knife or aspiration, ii. A-39, 40; iii. A-12.

  Foreign Bodies.
  Trephining, removal, iii. A-22.

  Hæmorrhage, Meningeal, Traumatic.
  Trephining; removal of clot of middle cerebral; control by compress. of com. carotid, ii. A-20; iii. A-23.

  Hemiplegia, Cerebral.
  Metallic disks, ii. A-27.

  Hydrocephalus Internus.
  Trephining, paracentesis, sut. of wnd. in pericran. and skin, iii. A-28.

AUTHORS QUOTED.

Bladder, Female, Diseases (*continued*).
  Reflex Troubles—Hunter McGuire, ii. H-23.

Bladder, Male, Diseases—
  Anæsthesia—A. Settier, iii. E-18; Zambianchi, A. Montali, Simes, C. H. Chetwood, iii. E-19.
  Carcinoma—Brohl, iii. E-22.
  Cystitis, Microbian—Guyon, iii. E-23.
    Tubercular—J. L. Reverdin, iii. E-23; Roux, Iversen, Schatz, Trendelenburg, Guyon, Poncet, Hartman, iii. E-24.
  Cystoscopy in—E. H. Fenwick, Cruise, Southam, Berkeley Hill, A. Broca, Grünfeld, O. K. Newell, G. von Antal, iii. E-19.
  Excision of Mucous Membrane—Brohl, iii. E-21.
  Extirpation of Bladder—Brohl, Bardenheuer, iii. E-21.
  Foreign Bodies—Guyon, Semeleder, Lavista, iii. E-20.
  Incontinence of Urine — Descroizilles, Max. Burweasch, Guion, iii. E-20.
  Rupture, Intra-peritoneal — W. Q. Skilling, iii. E-22; H. H. Grant, iii. E-23.
  Stone and Operations—Edm. Andrews, P. J. Freyer, iii. E-20; D. H. Agnew, A. T. Cabot, A. Pulido, G. Dennys, Otis, iii. E-21.
  Supra-pubic Cystotomy—K. Eigenbrodt, Trendelenburg, Bangs, Sir Henry Thompson, H. T. Herring, J. A. Wyeth, Solomka, iii. E-25; Günther, Dulles, Flury, Garcin, Fuffier, Rodsenitsch, iii. E-26; R. Fowler, Sonnenburg, Langenbuch, Trendelenburg, iii. E-27; F. S. Watson, iii. E-21.
  Vesical Prostatism — Guyon, Albarran, iii. E-28; Lannois, Guyon, iii. E-29.

Blood, Action of Snake-poison on—Feoktistow, v. B-47.
  Action of the Liver on—Anthen, ii. E-I.
  Blood-plaques or Blood-plates—Löwit, Laker, ii. E-2; Laker, v. I-1.
  Coagulating Ferments, Action -- Fick, v. I-3.
  Corpuscles, Number of in Human—W. Reinecke, v. H-3.
  Germicidal Action of—Buchner, Nuttal, iv. L-40.
  Hæmacytometer and Hæmoglobinometer, Value of — Oppenheimer, ii. E-4.
  Hæmoglobin and Oxyhæmoglobin — Hoppe-Seyler, v. I-3.
  Intra-vascular Coagulation by Drugs—Silbermann, v. B-51.
  Leucocytes, Multiplication of—Spronk, ii. E-2.
  Leucomaines in—Wurg, iv. L-39.
  Parasites in Blood — Danilewsky, ii. E-3; Sacharoff, Obermeier, ii. E-4.
  Physiology of—
  Pigment in Blood, Origin of—Neumann, ii. E-1; M. B. Schmidt, Meckel, Laveran, Pilliet, ii. E-2.
  Portal Blood in the General Circulation—Stockton, Osler, ii. E-3.
  Reaction of Blood—Kraus, H. Meyer, ii. E-1; Landois, Peiper, v. I-1; Loeffler, Jeffries, Putnam, Peiper, v. I-2.
  Red Corpuscles, Degenerative Changes —Mosso, Annual, 1888, Cattaneo and Monti, v. I-5.
  Red Corpuscles, Stromata of—Halliburton and Friend, v. I-4.
  Venous Congestion — Cuffer and Sollier, ii. E-3.

Blood and Spleen, Diseases of—Frederick P. Henry, ii. E-1.

Blood-letting, Therapeutic Uses — R. L. Payne, Crocq, H. C. Wood, v. A-23.

Blood-pressure—
  Action of Snake-poison on—Feoktistow, v. B-46.

Blood-vessels, Physiology—
  Innervation—Hürthle, Willis, Foster, v. I-29; Bradford, Dastre and Morat, v. I-30.
  Vasomotor Nerves, Origin and Course —Gaskell, Bradford, v. I-27; Gad and Joseph, v. I-28.

Boldo—Boldoin, Therapeutic Uses—Juranville, v. A-24.

GENERAL INDEX.

Borates of the alkaloids, therapeutic uses.......v. A- 24

Boric acid.......v. B- 14
  therapeutic uses.......v. A- 24

Boro-glycerin — glycero-borate of sodium.......v. A- 24

Bothriocephalus liguloides.......i. F- 6

Bradycardia, permanent.......i. B-35, 37

Brain, diseases of.......ii. A- 1
  abscess.......ii. A- 37
  anæsthesia, alternate.......ii. A- 23
  aphasia and allied states.......ii. A- 27
    abasia.......ii. A- 30
  athetosis.......ii. A- 24
  corpora quadrigemina, diseases.......ii. A- 52
  encephalitis.......ii. A- 51
  epilepsy (*quod vide*).......ii. A- 55
  epilepsy, procursive (*quod vide*).......ii. A- 73
  hæmorrhage, infantile cerebral.......ii. A- 18
    meningeal, traumatic.......ii. A- 20
    supra- and sub- dural.......ii. A- 16
  hemianopsia.......ii. A- 24
  hemiplegia, cerebral.......ii. A- 26
  hystero-epilepsy (*quod vide*)..ii. A- 74
  meningitis, cerebro-spinal.......ii. A- 46
    suppurative.......ii. A- 48
    tubercular.......ii. A- 48
  monoplegia, brachial.......ii. A- 25
  œdema, cerebral.......ii. A- 22
  paralyses, miscellaneous.......ii. A- 41
  sinuses, idiopathic thrombosis of cerebral.......ii. A- 19
  syphilis.......ii. A- 54
  tetanus, cephalic.......ii. A- 24
  tumors.......ii. A- 30

Brain, histology of.......v. H- 5

THERAPEUSIS.

BRAIN, DISEASES (*continued*).

INJURIES.
Trephining, iii. A-19.

MENINGITIS, SUPPURATIVE.
Mercury; *traumatic*, trephining, removal of bone-splinter; dura mater opened; irriga. with subl sol., drainage, ii. A-50; *chronic basilar* iodide, mercury, galvaniza.; *complicating otitis media*, trephining, ii. A-51; sulphonal, v. A-129.

MENINGO-ENCEPHALOCELE.
Evac. by aspir.; pedicle lig. in 2 portions; mass cut off; salol dressing, iii. A-28.

TUMORS.
Trephining; removal if superficial, iii. A-4.

BRIGHT'S DISEASE.
Climatology: Even, warm, dry, temp., 60° to 65° F. (15.55° to 18.44° C.), v. D-1. Best results in early stage; contin. resid.; list of resorts, v. D-2.

ADULT.
1. Lower the nephritic process by surface heat, cupping, sal. purga. 2. Relieve contracted arteries, incr. tension, and cardiac labor by acon., chloral, op. Put pat. in bed; daily bath; sal. Epsom for sevl. succes. days; then aconite in minute doses hourly; absol. milk diet; later, grad. dimin. and substitute sol. food. *Subacute form:* Warm, dry clime and out-door life; except dur. exacerba., solid food and fats; avoid milk and min. wat.; iron and oxygen for blood; diaphor. and limit amt. of fluids; nitro-glyc. and chloral to red. art. tens.; salicylates; bleeding, ℥xiiss (389.0 grm.), i. G-15. Purga., diaphor., careful diet; sod. and potass. iod., i. G-16. *Chronic form:* Diaphor., purga., reduct. to min. of all toxines; regula. of diet; alimentary antisep.; nitro-glyc., with bellad. and dig.; Buffalo lithia-water; jabo-

AUTHORS QUOTED.

BONE, DISEASES OF—
  GROWTH — Schüller, Ollier, Helferich, Haab, iii. G-18; Mikulicz, Bergmann, Ollier, Dollinger, iii. G-19.
    BONE-GRAFTS—Senn, iii. G-19; Schede, Hopkins, Adamkiewicz, iii. G-20; Seydel, Lücke, Poncet, White, Hopkins, iii. G-21.
  OSTEITIS DEFORMANS—Pozzi, Clay, Lloyd, Spencer, Walley, Kortüm, Verneuil, iii. G-18.
  OSTEITIS SYPHILITICA—White, iii. G-18.
  OSTEOMYELITIS—Park, iii. G-15; Cauchois, Braquehaye, Bobroff, Küster, Diakonoff, Bobroff, Hahn, Forestier, Wyeth, anon., iii. G-16; Park, Thelen, Marchant, Kirmisson, Larabrie, Muttart, Potter, Schwartz, Kirmisson, Braquehaye, iii. G-17.
    LEPROSA—Sawtschenko, iii. G-17.
    MOTHER-OF-PEARL WORKERS — Toussaint, Levy, iii. G-17.
  SACRO-ILIAC DISEASE—Van Hook, iii. G-14; Leplat, Hektoen, Herrick and Parkes, Collier, iii. G-15.
  SENILE CHANGES IN—Humphrey, ii. N-1.
  TUBERCULOSIS—Dollinger, Pavlovsky, Sibley, Kollman, iii. G-12; Verneuil, Dollinger, Wendelstadt, Cecchorelli, Schoff and Rabl, Landerer, Stocquart, Feuret, Martell, Albert, Abbe, iii. G-13; Albert Redard, Poels, Fenger, McArdle, Barker, Baudouin, iii. G-14.
  TUMORS—
    ACTINOMYCOSIS—Bremer, iii. G-22.
    EXOSTOSIS—Hungate, McBurney, Weir, Leidy, Campbell, Clarke, Ollier, iii. G-21; Campbell, Spencer, iii. G-22.
    MALIGNANT TUMORS — Billings, Verneuil, Péan, Lloyd, Poncet, McDonnell, iii. G-22.
    PEARL TUMORS—Virchow, iii. G-23.
    RIDER'S BONE — Lalesque, Orlow, iii. G-22.

BORATES OF THE ALKALOIDS—A. Petit, v. A-24.

BORIC ACID—E. Andrews, v. B-14.
  THERAPEUTIC USES—Lebovicz, v. A-24.

BORO-GLYCERIN — GLYCERO-BORATE OF SODIUM—Hirschsohn, v. A-24.

BOTHRIOCEPHALUS LIGULOIDES—Murata and Isao Ijima, Cobbold, i. F-6.

BRADYCARDIA, PERMANENT—Huchard, i. B-37.

BRAIN, DISEASES OF—Landon Carter Gray, ii. A-1.
  ABSCESS—Conchon, ii. A-37; von Bergmann, ii. A-38; Brooks, ii. A-39; Maus, Heineke, ii. A-40; von Donhoff, Bouisson, Dana, ii. A-41.
  ANÆSTHESIA, ALTERNATE—Paget, ii. A-23.
  APHASIA AND ALLIED STATES—M. Allen Starr, Broca, ii. A-27; Ecker, Ferrier, Broca, ii. A-28; Wernicke, ii. A-29; Eisenlohr, Wernicke, H. C. Wood, Robertson, ii. A-30.
    ABASIA—Charcot, Bloch, ii. A-30.
  ATHETOSIS—Löwenthal, ii. A-24.
  CORPORA QUADRIGEMINA, DISEASES — Nothnagel, Bernhardt, Bristowe, Ferrier, Fischer, ii. A-52; Gower, Bernhardt, ii. A-53.
  ENCEPHALITIS—Friedmann, Seeligmüller, ii. A-51; Sachs, ii. A-52.
  HÆMORRHAGE, INFANTILE CEREBRAL—Collier, ii. A-18.
    MENINGEAL, TRAUMATIC—John Croft, Courmant, Spencer and Horsley, ii. A-20; Lloyd, Bruno, Meyer, Oppenheim, Gerhardt, Bernhardt, Schultze, ii. A-21; Henoch, Tatham, ii. A-22.
    SUPRA- AND SUB- DURAL—Mittenzweig, Huguenin, F. X. Dercum, ii. A-16; Cheyne-Stokes, ii. A-17.
  HEMIANOPSIA—William Noyes, ii. A-24.
  HEMIPLEGIA, CEREBRAL—B. Sachs, F. Peterson, D'Espine, Walter Pearce, Chassarin, ii. A-26.
  MENINGITIS, CEREBRO-SPINAL — Felix Wolff, Kohlmann, ii. A-46; Bozzolo, ii. A-47; Belfanti, Blanquinque, ii. A-48.

GENERAL INDEX.

Brain, physiology .... ii. A- 1
  cerebral localization .... ii. A- 1
  cortical centre .... ii. A- 24
  development, defective .... ii. A- 75
  motor regions in newborn animals, excitability of .... ii. A- 14
  optic chiasm, medullated fibres in human .... ii. A- 15
  palm reflex .... ii. A- 16
  thermo-polypnœic centre .... ii. A- 14

Brain, surgery of the .... iii. A- 1
  abscess .... iii. A- 12
  endocranial hæmorrhage .... iii. A- 23
  epilepsy .... iii. A- 25
  foreign bodies .... iii. A- 22
  general considerations .... iii. A- 1
  hydrocephalus internus .... iii. A- 28
  injuries .... iii. A- 19
  meningo-encephalocele .... iii. A- 28
  trephining, exploratory .... iii. A- 19
    in general .... iii. A- 15
  tumors .... iii. A- 2

Bread, alum in .... v. F- 21

Bright's disease .... i. G- 2
  etiology .... i. G- 2
  pathology .... i. G- 11
  symptomatology .... i. G- 7
  treatment .... i. G- 15

THERAPEUSIS.

BRIGHT'S DISEASE (*continued*). randi and pilocarp., chimaphila, solidago. Give toward evening paraldehyde, gr. xxx to xlv (2.0 to 3.0 grm.), in caps. or sol.; caffein, gr. iv to viij (0.25 to 0.5 grm.), sevl. times d.; calomel, i. G-16. Sal Epsom, teasp. ev. morn.; cal. and jalap; eggs and highly-album. foods not to be avoided; no special dietary, i. G-17. Mixed diet, with fluid or coag. album., and milk freely; avoid albumens; milk alone or with Vichy, carbonated water, or lime-water; occas. small amt. farinac. and veget fd., and boiled or roast meat early in day; milk, cream, veget.; avoid beef-tea, ac. hydrochlor. dil.; zinc salts; use antipyrin, i. G-18. *In pregnancy:* If prev. Bright's dis. or advanced forms, induce premat. labor, i. G-19. Ichthyol, gr. 15 (1.0 grm.), daily, v. A-80; pilocarpine, gr. ¼ (0.016 grm.), hypod., v. A-85; oxygen inhala., v. A-102; strophanthus, v. A-126; sulphonal, v. A-129.

IN CHILDREN.
Acute febrile form: Salicyl. acid given early; strict milk diet, i. G-15; juniper-berry, juice, 2 to 3 teasp., v. A-85.

BRONCHITIS—
Suppress. of urine: Digitalis pulv. fol., gr. ii¼ (0.15 grm.), in infus., t.i.d.; cataplasm over kid.; dry cups.
Hypersecretion and threat. collapse: Tinct. ferri; ammon. mur. by inhala. *If dimin. secretion:* ℞ Apomorphin. mur., gr. 1-6 to ½ (0.01 to 0.03 grm.); aq. dest., ℥iv (118 grm.); acid. hydrochlor., gtt. v; syr. simpl., ℥j (29.5 grm.)—M. S.: 1 teasp. ev. 2 hrs. Musk. *In infants:* Change of position; carry in arms; pressure to chest; ess. pinus pumilio in capsul., i. A-61; syr. bananas, 1 teasp. 8 or 10 t. daily. *In plastic:* Inhala. aq. calcis pura or with water. *In children:* Stimulants, quin., gr. j to iiss (0.06 to 0.16 grm.); sinapisms, i. A-62; pot. iod., gr. ivss (0.30 grm.), in aq., ʒij (8.0 grm.), a. p., v. A-110; terebene, v. A-135.

CAPILLARY.
Oxygen inhala., v. A-102.

CHRONIC.
Faradiza. of thorax, v. C-10; cocillana. ext. fl., gtt. viiss; tinct., ʒss (2.0 grm.), v. A-43; tinct. hysterionica baylah., v. A-80; syr. ac. hydriodic, v. A-81.

AUTHORS QUOTED.

BRAIN, DISEASES OF (*continued*).
  SUPPURATIVE—Netter, ii. A-48; Weichselbaum, Friedländer, ii. A-49; Neumann and Schafer, J. J. Clark, Broadbent, Lampiasi, ii. A-50; L. C. Gray, Meiring Beck, ii. A-51.
  TUBERCULAR—Rendu, Jaccoud, Leblond, Rothziegel, ii. A-48.
 MONOPLEGIA, BRACHIAL—Chabrely, ii. A-26.
 ŒDEMA, CEREBRAL—Huguenin, ii. A-22.
 PARALYSES, MISCELLANEOUS — Adamkiewicz, ii. A-41; Bamberger, Nothnagel, ii. A-43; Kundrat, Fürbringer, ii. A-44; Schnell, Desplats, Fortin, Pilliet, ii. A-45.
 SINUSES, IDIOPATHIC THROMBOSIS OF CEREBRAL—Powell, Galen, ii. A-19.
 SYPHILIS—W. R. Gowers, Négrié, Régnier, ii. A-54; Angel Money, ii. A-55.
 TETANUS, CEPHALIC—Lannois, ii. A-24.
 TUMORS—Lespinasse, ii. A-30; Railton, M. A. Starr, Knapp and Roosa, ii. A-31; Joseph Zeit, Westphal, Schmidt and Bristowe, Bernhardt, ii. A-32; Joseph, Kny, ii. A-33; Schulze, Daly, Whitwell, Rendu, ii. A-34; East, Ferrier, ii. A-35; Ferrier, Hirst, H. C. Coe, ii. A-37.
BRAIN, HISTOLOGY OF—C. L. Herrick and W. G. Tight, v. H-5.

BRAIN, PHYSIOLOGY—
 CEREBRAL LOCALIZATION — Ferrier, Fritsch and Hitzig, ii. A-1; Broca, ii. A-2; Charcot, Ferrier, Nothnagel, Exner, Luciani, Bastian, Horsley, ii. A-3; Schäfer, Ferrier, ii. A-4; Ferrier, Nothnagel, Seguin, ii. A-5; L. C. Gray, Wilbrand, ii. A-6; May, Walsham, D. F. Yeo, ii. A-7; Macewen and Owen, Seydel, ii. A-8; Billings, Seydel, Eccheverria, Walsham, König, ii. A-9; Walsham, Hughlings Jackson, ii. A-10; Ferrier, ii. A-11; Rose Hale White, ii. A-12; Ferrier, C. L. Dana, ii. A-13; Anderson and Makins, ii. A-14.
 CORTICAL CENTRE—Rossbach, ii. A-24.
 DEVELOPMENT, DEFECTIVE — Dercum, Wilmarth, A. D. Parker, Charles K. Mills, Benedict, Spitzka, ii. A-75; Bruce, Roscoli, ii. A-76.
 MOTOR REGIONS IN NEWBORN ANIMALS, EXCITABILITY—Bechterew, ii. A-14.
 OPTIC CHIASM, MEDULLATED FIBRES IN HUMAN—Bernheimer. Weigert, Singer, Muensner, ii. A-15.
 PALM REFLEX—Boynton Lee, ii. A-16.
 THERMO-POLYPNŒIC CENTRE—Isaac Ott, ii. A-14; Girard, Chittenden, Dana, ii. A-15.

BRAIN, SURGERY OF THE—
 ABSCESS—Cameron, Kidd, V. Fritsch, iii. A-12; Thomas W. Kay, John H. Morgan, iii. A-13; Jordan Lloyd, Terrillon, J. T. Eskridge, iii. A-14; Keetley, Orlow, iii. A-15.
 ENDOCRANIAL HÆMORRHAGE—Allingham, Lucas-Championnière, Croft, iii. A-23; Bellamy, Godlee, iii. A-24.
 EPILEPSY — Delagénière. von Bergmann, Lucas-Championnière, Péchadre, Kochler, Mouisset, Allen, Langenbuch, iii. A-25; Fischer, Péan, Wilson, Southam, Bendandi and Boschi, Lépine, Championnière, Letulle, Williamson, Jones, Wilson, Mills and Roberts, Lees and Page, Sartorari, Bilroth, Salser, Larget, iii. A-26.
 FOREIGN BODIES — Stimson, Stockwell, J. W. Wright, iii. A-22.
 GENERAL CONSIDERATIONS—Osler, Lucas-Championnière, Dercum, iii. A-1.
 HYDROCEPHALUS INTERNUS — Ayres, iii. A-28.
 INJURIES—Barrow, iii. A. 19; Stockwell, iii. A-20; Folsom, Wallace, Kehr, Flothmann, Allen, Godard, Steele, Marwood, Fisher, Goodhue, von Vàmossy, Ward, Höftemann, Allen, Runner, Menschel, Ricard, Mason, Fisher, Tiffany and Michael, Barton, Ford, Wille, Lampiasi and Bendandi, Cox, Zinsmeister, Wernicke, Gruss, Keetley, Clarke, Bockelmann, Berry, Berger, Jones, Formad, Woods, Keetley, Allis, Powers, iii. A-21.
 MENINGO - ENCEPHALOCELE — Perier, iii. A-28.

GENERAL INDEX.

Bromide of potash.........................v. B- 15
Bromides, physiological action......v. A- 24
Bromine, poisoning by.................v. A- 25
Bronchitis...i. A- 58
  etiology...i. A- 58
  pathology.......................................i. A- 59
  symptomatology..............................i. A- 60
  treatment..i. A- 61
Bryonia alba, therapeutic uses......v. A- 25
Bulimia...i. C- 13
Bunions, treatment......................iv. A- 53
Burns and scalds, treatment..iv. A-49, 50, 57
Butter, margarine........................v. F- 22
Butyl chloral, therapeutic uses.....v. A- 55
Cactus grandiflorus, therapeutic uses v. A- 25
Caffeine, therapeutic uses............v. A- 25
  citrate, toxic effects...............v. A- 38
Calcium, therapeutic uses............v. A- 26

THERAPEUSIS.

Bronchitis (*continued*).
  Putrid.
    Myrtol, gr. ii¼ (0.15 grm.), in caps. t.i.d., v. A-94.
Bulimia.
  Treat prim. disorder; tight bandage, i. C-13.
Bunions.
  Protect healthy skin around bun. with collod. flexil.; saturate bun. with ac. carbol. cryst.; remove excess with absorb. cott. or blotter; repeat in 3 or 4 d., iv. A-53.
Burns.
  ℞ Cocain. hydrochlor., 3 p.; aquæ.. 60 p.; ac. bor., 6 p.; glycerin., 8 p.; ac. carbol., 2 p.—M. Sig.: Soak cotton with solution for dressing, iii. Q-10. Ichthyol and lanolin (10% to 30%), iv. A-57; carron-oil contain. creolin (5%), iv. A-49. ℞ Pot. sozoiod., 1 p.; amyli vel talcis 9 p.—M., iv. A-50. Emuls. eq. pts. of sat. sol. borax and ol. lini.; apply till slough separates. If much pain, cocaine sol. (p. r. n.); then ungt. Zinci oxidi, iv. A-57. Pulv. ac. boracic. loc., v. A-24; Salol, v. A-122; thiol siccum, 1 p., with starch or zinc oxide, 5 p., as dusting powder, v. A-136.
Caffeine Citrate, Toxic Effects.
  Emetics, brandy, warmth, v. A-38.
Calculus, Vesical.
  Nephrot.; *when passing into bladder*, use bellad. to toxic

AUTHORS QUOTED.

Brain, Surgery of the (*continued*).
  Trephining, Exploratory—Anon., Souchon, iii. A-19.
    in General—Whittell, Roberts, iii. A-15; Thiéry, Kocher, iii. A-16; R. Jaksch, Macewen, Adamkiewics, Guérin, Seydel, Adamkiewics, Guérin. R. Jaksch, Caird, Gerstein, iii. A-17; Küster, Bidder, Seydel, Zeidler, iii. A-18; Spljarnyi, iii. A-19.
  Tumors—M. Allen Starr, iii. A-2; Lampiasi, George J. Preston, iii. A-3; H. Fischer, Horsley, Jackson, iii. A-4; Donald Hood, Limont, Thane, Page, H. C. Wood, iii. A-5; Wernicke, Hippus, Agnew, Reid, iii. A-6; Carl Hafner, P. C. Knapp and E. H. Bradford, iii. A-7; Broca, Reid, Horsley, L. S. Pilcher, iii. A-9.
Bread, Alum in—Bouglants, P. de Pietra Santa, v. F-21
Bright's Disease—
  Etiology—Dickinson, Beevor, George Johnson, i. G-2; Fabre, Finley, Plaut, Rattoni, Maragliano, Meyer, Ribbert, Albarran, Lafitte, Beam, i. G-3; Stefania, Dalton, i. G-4; Snyers, Hagenbach, Hoffmann, Sörensen, Ekkert, Tresilian, Mircoli, Montenebliano, von Jaksch, Fiessinger, i. G-5; Pennington, Atkinson, Jaccoud, Lecorché, Crooke, i. G-6; Engelmann, i. G-7.
  Pathology—Anon., Bright, Johnson, Rayer, Jaccoud, Charcot, Lecorché, Frerichs, Klebs, Bamberger, Weigert, Lecorché, Talamon, Rattoni, Willey, i. G-11; Sörenson, Levison, Rindfleisch, i. G-12; McPhedran, Parke, Thiry, Tennent, Dallemagne, Sundberg, Eklund, i. G-13; Javaux, Parke, Nixon, Barker, Finley, Tuffier, Martin, Charrin, i. G-14.
  Symptomatology—Knight, Brayton, Sehrwald, Bond, Jones, i. G-7; Auld, Trousseau, i. G-8; Thompson, Tennent, von Hoesslin, Christian, i. G-9; Guyon, Israel, i. G-10; Eklund, Staball, Riess. i. G-11.
  Treatment—Delafield, von Jaksch, Illington, Milne, i. G-15; Primavera, Dujardin-Beaumets, Huchard, Bartholow, Wootten, Davis, Baskerville, Egan, Marshall, Cleveland, Abet, Clemens, Cervello, Caruso-Pecoraro, Jendrassik, Bïshüïieff, Lépine, Erb, i. G-16; Jendrassik, Bieganski, Shirtzig, Erb, Plaut, Bruen, Moore, Schreiber, Senator, Leyden, Oertl, i. G-17; Sehrwald, Senator, Robinson, Gaucher, Girard, Derniéville, Helpup, Chopin, Feeney, i. G-18; Tyson, i. G-19.
Bromide of Potash—Rossi and Agostini, v. B-15.
Bromides, Physiological Action—L. W. Baker, Clark, Hammond, Gowers, Rosenbach, G. Thompson, v. A-24; Doyon, v. A-25.
Bromine, Poisoning by—W. Schmalfuss, v. A-25.
Bronchitis—
  Etiology—Grant, West, i. A-58.
  Pathology—Picchini, Stirling, Curschmann, Caussade, i. A-59; Eklund, i. A-60.
  Symptomatology—West, Stirling, i. A-60.
  Treatment—Simon, Burman, Murrell, Dembitz, Lantier, Flascher, i. A-61; Kisch, Stirling, Simon, i. A-62.
Bryonia Alba, Therapeutic Uses—Petrescu, v. A-25.
Bulimia—Leo, Ord, i. C-13.
Bunions, Treatment—Anon., iv. A-53.
Burns and Scalds, Treatment—Casati, Ducrey, iv. A-49; Ostermayer, iv. A-50; Illingworth, iv. A-57.
Butter, Margarine—Ch. Girard, M. J. de Brevans, v. F-22.
Butyl Chloral, Therapeutic Uses—Liebreich, v. A-25.
Cactus Grandiflorus, Therapeutic Uses—C. L. Gregory, v. A-25.
Caffeine, Therapeutic Uses—H. Huchard, J. B. Walker, anon., von Schröder, Cervello, Caruso-Pecoraro, v. A-25.
  Citrate, Toxic Effects—T. Geraty, v. A-38.

GENERAL INDEX.

Calculus, biliary (see Gall-stones) i. C-40, iii. C-40, 46
  pulmonary (see Lungs)..........i. A- 70
  vesical..........i. G- 38

Calla, toxic effects..........v. A- 26

Calorimeter, Ott's..........v. I- 31

Camphor, therapeutic uses..........v. A- 26

Cancrum oris..........i. C- 2

Cannabis Indica, therapeutic uses v. A- 27

Cantharides, toxic effects..........v. A- 27

Caput succedaneum..........ii. L- 1

Carbolic acid, in lupus..........iv. A- 54
  toxic effects..........v. A- 27

Carbon monoxide, toxic effects......v. A- 30

Carbonic acid..........v. B- 15
  local anæsthesia..........iii- P- 20
  therapeutic uses..........v. A- 29

Carbonic oxide, poisoning by.......iv. J- 19

Carbuncle, treatment..........iii. K- 19

Carcinoma, electricity in..........v. C- 14
  geographical distribution........v. E- 37

Cardiac injuries, fatality..........iv. J- 4

Carica papaya, in tattoo-marks....iv. A- 54

Cartilage, histology of..........v. H- 3

Cascara sagrada, therapeutic uses.v. A- 30

Castor-oil, exhibition of..........v. A- 30

Catgut ligatures, preparation......iii. Q- 11

Catha edulis, therapeutic uses......v. A- 31

Cell-globulin..........v. I- 5

Cell-nucleus, composition..........v. H- 1

Census, data and enumerations.....v. E- 1

Centenarians in England and Wales..........ii. N- 1
  in Ireland..........ii. N- 1

Cephalalgia..........ii. C- 41
  etiology and pathology..........ii. C- 41
  symptomatological classification..........ii. C- 43
  therapeutics..........ii. C- 43

Cerebral abscess, from suppurative otitis..........iv. C- 31
  localization (see Brain, physiology)..........ii. A- 1
  sinuses, thrombosis (see Brain, diseases)..........ii. A- 19

Cestodes..........i. F- 4
  geographical distribution.........i. F- 4
  morphology and embryology...i. F- 4

Chapped hands from use of antiseptics..........iii. Q- 14

Cheek, plastic surgery of..........iii. J- 18
  cicatricial contract'n (noma).iii. J- 18

THERAPEUSIS.

CALCULUS, VESICLE (*continued*). effect; salol; infus. of garden-bean blossoms; antipyrin. *To prevent formation*, use antac., pot. citras., bicarb., or acetas; Rudolphsquelle, Marienbad, Kreuzebrunne, Arkansas lithia-water, i. G-40.

CALLA, TOXIC EFFECTS.
  Stimulants, v. A-26.

CANCRUM ORIS.
  Cut away sloughs; apply to ulcers sol. corros. subl. (1 to 500) once or more daily, and (1 to 1000) sol. constantly; strong sol. danger.!! Remove slough till bleeding occurs, then use ac. nitric. fort.; cleanliness in after-treat.; syr. mouth; give food in first wk. by nasal tube, i. C-2.

CANTHARIDES, TOXIC EFFECTS.
  Prophyl.: Make urine alk., by sod. bicarb. int., and give diuretic, antisep. after-treat. of blister; bismuth cocaine, drumine, müllerine, milk and lime-water int., v. A-27.

CARBOLIC ACID, TOXIC EFFECTS.
  Whisky hyp., v. A-29.

CARBON MONOXIDE, TOXIC EFFECTS.
  Artif. respiration, transfus. of saline sol., ℥i¼ (50 c.cm.), in vein of arm, v. A-30; oxygen inhala., v. A-102.

CARBUNCLE.
  ℞ Glycer. (neutral 30%), aq. destil., āā ℥ss (15 grm.); ac. carbol. cryst., ♏xlv (2.8 grm.)—M. Sig.: Inject ʒj into inflmd. zone. Ac. carbol. spray (2½%) into infl. area for 1 hr. twice daily; tinct. iodi. t. i. d. ext. with cotton compress.; crucial incision, campho-phénique dress.; curette, pack with pure ac. carbol. on lint, remove, iodof. and wool compress.; sol. ac. carbol. (1 to 40) or sublim. (1 to 2000) loc., then dust eq. pts. iodof. and zinc [chloride?]; carbol. oil (1 to 40) dress., renew twice daily; remove sloughs, iii. K-20; warm subl. sol., irriga. ev. 3 or 4 hrs.: in interval, cover with pad wet with same: scraping, iii. K-21; galvanization, v. C-7.

CARCINOMA.
  Strong interrup. voltaic curr.; 70 cells of electro-mot. force, 105 volts; begin 10 milliamp., incr. to 600, v. C-15; sol. creolin (1%) loc., v. A-48.

CEPHALALGIA.
  Local: Spray or lotion of aconitia, sheet-lint wet with 20% sol. menthol. to head; sol. pot. cyanide, Trousseau's meth.; and Rithet's tobacco and quin. snuff, ii. C-44.
 OF BRAIN-WORKERS.
  Nervines: Antipyrin [gr. iv to xxx (0.25 to 2.0 grm.)]; caffein [gr. j to v (0.07 to 0.33 grm.)]; bromides (gr. viiss to xxx (0.5 to 2.0 grm.)]; attention to eyes, diet, and exercise, ii. C-43.
 OF MUSCLE-WORKERS.
  Attention to malaria, anæmia, syphilis, and rheumatic influences; ammon. mur., ʒss to j (2.0 to 4.0 grm.), in wafers.
 OF NEURASTHENIA.
  Intern.: Menthol, gr. v (0.3 grm.), in hot water; menthol, gr. v to x (0.3 to 0.6

AUTHORS QUOTED.

CALCIUM, THERAPEUTIC USES—Hugh Wood, H. V. Knaggs, v. A-26.
CALCULUS, VESICAL—Posner, Bruce, Ebstein and Nicolaier, i. G-38; anon., Duret, Box, Wied, Billings, Chiene, Davis, Flint, Potain, Pousson, i. G-39; Keen, Caillé, Murray, Waugh, anon., Huchard, Roberts, Dabieszewski, Adams, i. G-40.
CALLA, TOXIC EFFECTS—F. C. Cluxton, v. A-26.
CAMPHOR, THERAPEUTIC USES—Chodounsky, Reichert, anon., Chodounsky, v. A-26.
CANCRUM ORIS—Gates and Kingsford, Murray, i. C-2.
CANNABIS INDICA, THERAPEUTIC USES—D. J. Leech, Valieri, Edward Birch, v. A-27.
CANTHARIDES, TOXIC EFFECTS—Saint-Phillipe, Garcia Cainha, John Reid, v. A-24.
CAPUT SUCCEDANEUM—Parvin, ii. L-1.
CARBOLIC ACID—
  IN LUPUS—F. Semeleder, Cordero, iv. A-54.
  TOXIC EFFECTS—Budin, v. A-27; J. R. Menzies, Leux, Max Kortüm, Lucas-Championnière, Monod, Th. Billroth, George Meyer, S. T. Richardson, A. G. R. Foulerton, C. Ferdinand Durand, anon., v. A-28.
CARBON MONOXIDE, TOXIC EFFECTS—Litten, Klebs, anon., v. A-30.
CARBONIC ACID—Richardson, v. B-15.
  LOCAL ANÆSTHESIA—J. Voituries, iii. R-20.
  THERAPEUTIC USES—Leyden, V. Swiecicki, George Bonne, A. Schmidt, Stifler, v. A-29; Dujardin-Beaumetz, v. A-30.
CARBONIC OXIDE, POISONING BY—Marcel Briant, iv. J-19.
CARBUNCLE. TREATMENT—Arnozan, Lande, iii. K-19; Maurange, Verneuil, Ryan-Tenison, Tichomirow, Dalton, O'Brien, McReddie, Sibthorpe, iii. K-20.
CARCINOMA—
  ELECTRICITY IN—J. I. Parsons, v. C-15.
  GEOGRAPHICAL DISTRIBUTION—Anon., v. E-37.
CARDIAC INJURIES, FATALITY—Hare, iv. J-4; Kronecker and Schmers, iv. J-6.
CARICA PAPAYA, IN TATTOO-MARKS—Brocq, Variot, Dupuy, iv. A-54.
CARTILAGE, HISTOLOGY OF—Eklund, Carl Th. Mörner, v. H-3.
CASCARA SAGRADA, THERAPEUTIC USES—H. H. Rusby, J. E. Taylor, Leon Rosenbusch, v. A-30.
CASTOR-OIL, EXHIBITION OF—R. R. Mitchell, v. A-30.
CATGUT LIGATURES, PREPARATION—Braas, Championnière, Benckiser, Schappe, iii. Q-12.
CATHA EDULIS—E. Egasse, Flückiger, v. A-31.
CELL-NUCLEUS, COMPOSITION—Kossel, Miescher, v. H-1; F. Tangl, Falchi, Müller, v. H-2.
CENSUS—
  DATA AND ENUMERATIONS—Chervin, Bertillon, de Pietra Santa, Clément, Levasseur, Mireur, Dumont, Variot, Billings, Cartwright, Korösi, ANNUAL, 1888, v. E-1; Billings, Moses and David, v. E-2; Corfield, Lancet, anon., v. E-4; T. B. Greenley, Comm. N. Y. Co. Med. Socy., v. E-5.
CENTENARIANS IN ENGLAND AND WALES—Anon., ii. N-I.
  IN IRELAND—Grimshaw, ii. N-1.
CEPHALALGIA—
  ETIOLOGY AND PATHOLOGY—Dana, ii. C-41.
  THERAPEUTICS—Trousseau, Rithet, Dana, Schnetter, Jones, Ranney, Lewis, Weir-Mitchell, Sinkler, ii. C-44.
CEREBRAL ABSCESS—
  FROM SUPPURATIVE OTITIS—Holger Mygind, Schmiegelow, iv. C-30; Richard Williams, Damer Harrisson, Politzer, iv. C-31.
CESTODES—
  GEOGRAPHICAL DISTRIBUTION—C. Kerbert, i. F-4; Kerbert, E. Van Beneden, Isao Ijima, Colman, E. A. Reeves, Baelz, L. Duchesne, i. F-5; T. C. Kicer, Knable, i. F-6.
  MORPHOLOGY AND EMBRYOLOGY—C. Claus, Danysz, Masars de Caselles, L. Colin, Notta and Marfan, Guilard, M. Braun, Nicholas Andry, C. von Siebold, Leuckart, i. F-4.
CHAPPED HANDS, FROM USE OF ANTISEPTICS—Prout, Meyer, Liebreich, iii. Q-14.

GENERAL INDEX.

Chilblains.......iv. A- 56

Children, age of parent and vitality of.......ii. N- 2
  death-rate of.......ii. N- 2
  growth of.......ii. N- 3
  weight of first-born.......v. E- 23

Chimaphila umbellata, therapeutic uses.......v. A- 31

Chinolin, contrary effects.......v. A- 31

Chloral, poisoning by.......iv. J- 21
  therapeutic uses.......v. A- 31

Chloramide—chloralamide, therapeutic uses.......v. A- 32

Chlormethyl, therapeutic uses.......v. A- 35

Chlorodyne, toxic effects.......v. A- 35

Chloroform anæsthesia.......iii. P- 4
  accidents.......iii. P- 5
  contra-indication.......iii. P- 7
  deaths.......iii. P- 7
  irritant effect of vapor.......iii. P- 4
  mixed anæsthesia.......iii. P- 6
  pupils a guide in.......iii. P- 8
  purity of drug.......iii. P- 4
  treatment of narcosis.......iii. P- 8
  untoward effects.......iii. P- 6

Chloroform, therapeutic uses.......v. A- 35

Chlorosis.......ii. E- 4
  etiology and pathology.......ii. E- 4
  treatment.......ii. E- 7

Cholecystenterotomy.......iii. C- 48

Cholecystotomy and cholecystectomy.......iii. C- 46

Cholelithotrity.......iii. C- 47

Cholera Asiatica.......i. D- 15
  death-rate, improvement in...v. F- 1
  epidemics of.......iv. M- 2
  etiology.......i. D- 15
  treatment.......i. D- 17

Choluria.......iv. K- 35

Chorea.......ii. C- 54
  etiology.......ii. C- 54
    relation to rheumatism.......ii. C- 55
  pathology—hereditary chorea.ii. C- 60
    relation to other nervous symptoms.......ii. C- 58
    relation to pregnancy.......ii. C- 59
    senile chorea.......ii. C- 59
  treatment.......ii. C- 62
    electricity in.......v. C- 9

Chromic acid — chromates — chrome-yellow.......v. A- 36

Chyluria.......iv. K- 36

THERAPEUSIS

Cephalalgia (*continued*).
grm.), with antifebrin, gr. v to x (0.3 to 0.6 grm.); phenacetin [gr. iij to x (0.2 to 0.6 grm.)]; antipyrin, small doses [gr. iij to iv (0.2 to 0.25 grm.)], freq. repeated, ii. C-43. *In obscure cases:* Pot. iod. [gr. iij to xxx (0.2 to 2.0 grm.) t. i. d.]; strong galvanic current; static electric.; ol. eucalypt., ♏v (0.3 c.cm.), ev. 4 hrs., ii. C-44. *Reflex:* Remove primary cause, eye-strain, nasal lesions, etc., ii. C-43.

Spasmodica (Sick Headache).
Tinct. nucis vom., gtt. j ev. 10 min., v. A-96.

Young Children.
Small doses [gtt. j to v], syr. ferri iod.; ferri et quin citr. [gr. j to v (0.07 to 0.33 grm.)]; remove from school; diet; eye-glasses; arsenic [liq. pot. arsenit., gtt. j to v, t. i. d.], ii. C-43; ergot. fl. ext., ♏x (0.6 c.cm.), intern., with or without iron, contin. 2 wks. after cure; hypnot. suggest., ii. C-40.

Chapped Hands from Use of Antiseptics.
Liquid soap containing alcohol and glyc., perfumed with ess. oil. ℞ lanolin, 50 p.; vanillin, 0.1 p.; ol. rosæ, gtt. j; or ℞ lanolin, 100 p.; liq. paraffin, 25 p.; vanillin, 0.1 p.; ol. rosæ, gtt. j—M. S.: Rub in well after using good soap and water, iii. Q-14.

Cheek, Plastic Surgery of. Cicatricial Contraction (following Noma).
Meloplasty, iii. J-18.

Chilblains.
Ichthyol and lanolin (20%), iv. A-56.

Chloral, Toxic Effects.
Lavage of stomach; injection of coffee; injections of ammonia, v. A-32.

Chronic (Habit).
Ext. cannabis, gr. ss (0.032 grm.), t. i. d., v. A-27; hypnotism, v. A-79.

Chloroform Narcosis.
Pour ether upon stomach; cold to neck; small, freq. repeat. doses as prophylact., iii. R-8; artif. respir.; inversion, iii. R-9.

Chlorosis.
Hygienic and Medicinal: Daily sponging, surf-bathing, massage, out-door exercise on horseback; iron filings [gr. j to vj (0.07 to 0.4 grm.)], with crēta præp., caffea, and rheum. *When craving for acids,* give ac. hydrochlor. [dil. gtt. v to xv.], ii. E-7; ferri albuminas in sol. with potash salts; enemata of defibrin. blood, ii. E-8; sesquibromide of iron, v. A-53; oxygen inhala., v. A-101; potass. permang., gr. iv to vj (0.26 0.39 grm.), daily, v. A-104.

Cholera Asiatica.
Atropin and morphia q. s. to check excess. secre. inject. over epigastr.; ergot fld. ext.,

AUTHORS QUOTED.

Chilblains—Kopp, iv. A-56.

Children, Age of Parent and Vitality of—T. Korösi, ii. N-2.
  Death-rate of—T. W. Grimshaw, ii. N-2; Sir C. A. Cameron, ii. N-2.
  Growth of—Monti, ii. N-3.
  Weight of First-born — D'Outrepont, Hecker, Spiegelberg, Dungan, Irme, Wernich, v. E-23.

Chimaphila Umbellata, Therapeutic Uses—Abet, v. A-31.

Chinolin, Contrary Effects—S. E. Henschen, v. A-31.

Chloral, Poisoning by—Anon., iv. J-21.
  Therapeutic Uses—J. K. Spender, Lauder Brunton, Yvon, R. Lépine, Peyraud, Nicolai, A. C. Free, v. A-31; Purdy, Brisine, A. Haffter, v. A-32.

Chloramide—Chloralamide—Von Mering, J. Hagermann and Strauss, Hagen and Hüfler, Strümpell, Erich Peiper, v. A-32; E. D. Reichmann, J. Hagermann, D. R. Paterson, George L. Peabody, Kuy, Otto Halász, v. A-33; Reichmann, anon., S. Rabow, anon., Kourad Alt, v. A-34; Halász, R. von Limbeck, v. A-35.

Chlormethyl, Therapeutic Uses—Debove, v. A-35.

Chlorodyne, Toxic Effects—Anon., v. A-35.

Chloroform Anæsthesia—
  Accidents—Dastre, iii. P-5; Aubert, iii. P-6.
  Contra-indications—Schwartz, iii. P-7.
  Deaths—D. Rose, anon., iii. P-7.
  Irritant Effects of Vapor—Von Iterson, Sterson, Leyden, Fischer, Zweifel, Paterson, iii. P-4; Zweifel, Wolff, J. A. Meigs, iii. P-5.
  Mixed Anæsthesia—Aubert, iii. P-6.
  Pupils, a Guide in—H. J. Neilson, iii. P-8.
  Purity of Drug—Diakonoff, Mentin, P. Muselier, Reynier, iii. P-4.
  Treatment of Narcosis—M. J. Michon, M. Péraire, iii. P-8; Velpeau, Lowrie, Chacon, T. G. Thomas, J. Hehir and Chamarette, J. Kelly, iii. P-9; Lauder Brunton, iii. P-10.
  Untoward Effects — Robert Ostertag, Ungar, Strassmann, iii. P-6; R. Winslow, L. Eliot, Nélaton, Cerne, iii. P-7.

Chloroform, Therapeutic Uses — Salkowski, v. A-35; Stepp, Henry Shimer, O. Rosenbach, Nussbaum, Peter Bos, v. A-36.

Chlorosis—
  Etiology and Pathology—Vergely, ii. E-4; Perret, ANNUAL 1889, W. Stephenson, ii. E-5; Tissier, Virchow, Potain, Huels, ii. E-6.
  Treatment — Peter, A. J. Richardson, Trousseau, Peter, ii. E-7; Thiébault, Antiq, ii. E-8.

Cholecystenterotomy — Terrier, iii. C-48; Winiwarter, iii. C-49.

Cholecystotomy and Cholecystectomy—Credé, Langenbuch, iii. C-46; Credé, Tait, iii. C-47; Mears, Depage, iii. C-48.

Cholelithotrity—Tait, iii. C-47; Mears, iii. C-48.

Cholera Asiatica—
  Death-rate, Improvement in—Surg.-Maj. Hutcheson, v. F-1.
  Epidemics of—U. S. Consul-General at Constantinople, anon., U. S. Consul at Manilla, S. L. Pisani, Mordtmann, iv. M-3.
  Etiology — Neuhaus, Kaiser, Kitasato, Simpson, Kartulis, Finkler and Prior, i. D-15; Löwenthal, Hueppe, Löwenthal, Stahle, MacLeod and Milles, Hehir, i. D-16; J. E. Pollok, Sedgwick, Montefusco, i. D-17.
  Treatment — Ross, Comerford, Duboué, Löwenthal, i. D-47; K. Dehio, Inosemzeft, i. D-18.

Choluria—Oliver, iv. K-35; Modigliano, iv. K-36.

Chorea—
  Etiology—Körner, Demme, Colburn, ii. C-54; Rieder, Laquer, ii. C-55.
    Relation to Rheumatism—Herringham, Garrod, Cheadle, Sansom, Sturges, Barnes, Mackenzie, Lee, Debray, Bouchaud, Greenwood, Eade, ii. C-55; Hegge, Chéron, Fry, ii. C-56.
  Pathology—Powell, Handford, ii. C-56; Jakowenko, Dana, ii. C-57; Barbour,

GENERAL INDEX.

Cicutine, therapeutic uses............v. A- 37

Cimicifuga racemosa, therapeutic uses v. A- 37

Cinchona (see Quinine)...............v. A-114

Cineraria maritima, therapeutic uses v. A- 38

Cinnamene (see Balsam of Peru).v. A- 31

Circulation, air in the.....iii. B-3, iii. I- 5
  physiology..............................v. I- 24

Circulatory system, anatomy........v. J- 8
  ventricles of the mammalian heart..............................v. J- 8

Citric acid, therapeutic uses.......v. A- 38

Civilization, demographic effects of v. E- 21

Cleft palate ....iii. J-19, 31

Climatology...............................v. D- 1
  climatotherapy ....v. D- 6
  general considerations...........v. D- 1
  health resorts..........................v. D- 7
    inland stations, moderate altitude..............................v. D- 9
    marine climates.................v. D- 7
    mountain stations............v. D- 11

Climatology and balneology.........v. D- 1

Clitoris, diseases..........................ii. H- 1
  injuries....................................ii. H- 1
  sarcoma.....................................ii. H- 1

Club-foot, pathology and treatment..............................iii. F- 51
  Holt's splint..........................iii. F- 58
  Roth's elevating spring.........iii. F- 59
  Shaffer's apparatus..............iii. F- 56

Coal-gas, toxic effects.................v. A- 38

Coca erythroxylon—cocaine.........v. B- 16
  therapeutic uses. ....v. A- 38
  toxic effects.............................v. A- 39

Cocaine anæsthesia....................iii. P- 16
  clinical uses and methods.....iii. P- 16
  dangerous symptoms ....iii. P- 19
  synthetic cocaine..................iii. P- 16

Cocaine habit...............................iv. I- 10
  symptomatology and toxicology...................................iv. I- 10
  treatment...............................iv. I- 11

Cocaine poisoning, in nasal treatment..............................iv. D- 38

Cocamine......................................v. B- 22
  isotropyl-cocaine...................v. B- 24

Cocillana, therapeutic uses.........v. A- 43

THERAPEUSIS.

CHOLERA ASIATICA (*continued*).
  inject. hypod. in first stage; argent. nitr., cupr. sulph., tannin, etc., useful in prophylax. *In collapse:* (1) intra-venous inject.: (2) tracheocentesis; (3) immers. in warm wat. for 2 or 3 min.; salol in large doses, i. D-17; salol up to ʒi¼ (5.0 grm.) doses. Inosemzeff's anti-cholera mixt.: ℞ Tinct. rhei co., ♏v (0.31 c. cm.): tinct. rhei spirit., ♏ij (0.12 c. cm.): tinct. opii simpl., tinct. valerian. æth., tinct. menth. pip., spts. æth. co., āā ʒij (62.2 grm.); ol. menth. pip., ♏xxiv (1.5 c. cm.): ext. nuc. vom. spts., gr. ivss (0.29 grm.), i. D-18; oxygen inhala., v. A-102.
CHOLERA INFANTUM.
  Copper arsenite, gr. 1-100 (0.0007 grm.), in small, divided doses: also good in cholera morbus, v. A-21; glycerin to sweeten milk, v. A-55.
 VOMITING IN.
  Mild faradiz. of pneumogastric, v. C-11.
CHOREA.
  General galvanism; strong faradiz. of surface, v. C-9. Prolonged sleep by means of brom. and chloral q. s., only awake when fed, for 2 wks.; awake for 1 wk. and then kept asleep for 3 wks. more, ii. C-62. Chloral, gr. v (0.3 grm.), t. i. d., incr. to gr. xv (1.0 grm.), t. i. d.; cold water poured on head and back while in warm bath; antipyrin, gr. viij (0.5 grm.), incr. to gr. lx (4.0 grm.) daily, ii. C-63; antipyrin, gr. xv (1.0 grm.), t. i. d.; auri bromid., gr. 1-10 (0.006 grm.), daily, increased by gr. 1-60 (0.001 grm.) daily, till sleep is prod.; ether spray to spine, brom. and chlor. intern., ii. C-64; antipyrin, v. A-14, 15; chloral, v. A-31; hypnotism, v. A-76, 79; methyl-chloride spray, v. A-92.
CHROMIC ACID, TOXIC EFFECTS.
 ACUTE.
  Free stimulation, v. A-37.
CLEFT PALATE.
  "Immediate op." within 10 d. after birth,—Maurice Collis's op., iii. J-19; staphylorrhaphy *vs.* mechan. treat.; Porter's post-op. and protecting diaphragm, iii. J-31; Baker's obturator; Billroth's combined staphylor. and uranoplasty, iii. J-32; Wolff's meth., iii. J-33; Rotter's op.; Langenbeck's meth., iii. J-34; Trélat's meth., iii. J-36; supplementary op., iii. J-37.
CLITORIS.
 SARCOMA.
  Amputation, ii. H-1.
CLUB-FOOT.
  Congenital: Commence treat. as soon as poss. after birth. *Equino-varus:* Exsect. of cuboid; cuneiform tarsotomy (Weber's op.); extirpa. of astrag., iii. F-51; remove wedge from outer side or lengthen inner side of foot; tenot. of tarsal ligmts., iii. F-52; retentive apparat., Thomas's wrench, and plaster-of-P. band: Wolff's portable silicate band; "Transformations-kraft," iii. F-53; Shaffer's

AUTHORS QUOTED.

CHOREA (*continued*).
    Mettler, Garrod, Cheadle, Groose, Wagner, Mitchinson, ii. C-58.
  HEREDITARY CHOREA — Herringham, Waters, Dunglison, Charles Gorman, Lyons, Huntington, Ewald, King, Peretti, Huber, West, Zacher, Hoffmann, Macleod, Lannois, ii. C-60; Lyon, King, Huber, Hoffmann, Friedreich, Lannois, Ewald, Facher, Macleod, Klebs, ii. C-61; Hoffmann, Sinkler, Huntington, King, Diller, Kornilow, Suckling, ii. C-62.
  RELATION TO OTHER NERVOUS SYMPTOMS—Séglas, Rondot, ii. C-58; Cadet de Gassicourt, Souza-Leite and Cherbuliez, Gay, Smith, Moricourt, ii. C-59.
  RELATION TO PREGNANCY—Ruheman, Handfield-Jones, ii. C-59.
  SENILE CHOREA—Anders, Tissier, Nixon, ii. C-59; Augier, Mettler, Gairdner, ii. C-60.
 TREATMENT—Bastian, Gairdner, ii. C-62; Schrötter, Simon, Legroux, ii. C-63; Moncorvo, Goubert, Sottas, Ollivier, ii. C-64.
  ELECTRICITY IN—Shoemaker, v. C-9.
CHROMIC ACID—CHROMATES—CHROME-YELLOW—Klimesch, D. D. Stewart, v. A-36; Kobert, Walter Fowler, anon., J. William White, John Marshall, v. A-37.
CHYLURIA—Solis-Cohen, Lucas, iv. K-36; Desmeth, Sigmund, iv. K-37.
CICUTINE, THERAPEUTIC USES—T. D. Nicholson, Burggraeve, v. A-37.
CIMICIFUGA RACEMOSA, THERAPEUTIC USES—C. J. Rademaker, Elliott, v. A-37; J. Craig Balfour, v. A-38.
CINERARIA MARITIMA, THERAPEUTIC USES—Thos. Christy, R. Mercer, v. A-38.
CIRCULATION, AIR IN—Hare, iii. I-5.
CIRCULATORY SYSTEM, ANATOMY OF—
 VENTRICLES OF THE MAMMALIAN HEART—Macdonald, Brown, King, v. J-8.
CITRIC ACID, THERAPEUTIC USES—Boymond, Langfelt, v. A-38.
CIVILIZATION—
 DEMOGRAPHIC EFFECTS OF—R. W. Felkin, v. E-21; Felkin, Clot Bey, Father Croonenberghs, Certes, C. N. Starcke, McLellan, v. E-22; Lester Ward, Grant Allen, Félice La Torre, v. E-23.
CLIMATOLOGY—
 CLIMATOTHERAPY—A. L. Gihon, ANNUAL, 1889, v. D-6; Burney Yeo, Rohé, v. D-7.
 GENERAL CONSIDERATIONS—G. von Liebig, J. C. Wilson, v. D-1; Alfred Haviland, ANNUAL 1889, v. D-2; W. B. Platt, E. O. Otis, v. D-3; Kretschmar, Otis, A. Ladendorf, Prim, Journ. Am. Med. Assn., de Pietra Santa, v. D-4; Roland G. Curtin, v. D-5; P. H. Kretschmar, ANNUAL, 1889, v. D-6.
 HEALTH RESORTS—
  INLAND STATIONS, MODERATE ALTITUDE—W. H. Geddings, P. N. Dubocay, v. D-9; H. O. Marcy, J. H. Platt, P. C. Remondino, W. S. Clark, Hirschberg, v. D-10; Thomas Savill, v. D-11.
  MARINE CLIMATES—Wm. F. Hutchinson, E. F. Cordell, v. D-7; W. H. Dakeman, Crespi, London Lancet, Provincial Medical Journal, v. D-8.
  MOUNTAIN STATIONS—S. A. Fisk, v. D-11; G. A. Kennedy, v. D-12; H. D. Niles, London Lancet, Wm. Ewart, Odermatt, v. D-13.
CLIMATOLOGY AND BALNEOLOGY—George H. Rohé, v. D-1.
CLITORIS, DISEASES—
 INJURIES—Bókai, ii. H-1.
 SARCOMA—Lafleur, ii. H-1.
CLUB-FOOT, PATHOLOGY and TREATMENT—Little, Solly, Otto Weber, Davies Colley, Lund, N. M. Shaffer, iii. F-51; D'Arcy Power, R. W. Parker, iii. F-52; Parker, Gibney, Thomas, Julius Wolff, iii. F-53; N. M. Shaffer, iii. F-54; Shaffer, iii. F-56; Shaffer, O. von Büngner, Volkmann, Lund, iii. F-57; Phelps, Kirmisson, R. L. Holt, Bernard Roth, iii. F-58.
COAL-GAS, TOXIC EFFECTS—Katayama, v. A-38.

GENERAL INDEX.

Cocoa-nut, therapeutic uses..........v. A- 44

Cod-liver oil....................v. A-44, v. B- 24
  lipanin......................v. A-87, v. B- 25
  morrhuol....................v. A-44, v. B- 25
  therapeutic uses......................v. A- 44

Cœliac affection in children...........i. E- 12
  etiology..................................i. E- 12
  pathology and diagnosis..........i. E- 13
  prognosis and symptomatology.i. E- 13
  treatment.................................i. E- 14

Coffee, narcosis..........................v. B- 28
  therapeutic uses......................v. A- 44

Colchicine, therapeutic uses........v. A- 45

Colchicum and colchiceine...........v. B- 26

Cold packs....................................v. B- 27

Collodion, therapeutic uses..........v. A- 45

Color-hearing—*L'Audition Colorée*
iv. C- 41

Colorado, phthisis resort...............i. A- 28

Colotomy, lumbar, inguinal........iii. C- 39

Conception (see Pregnancy).........ii. I- 5

Condurangin, composition...........v. A- 45

Constipation, adult.......................i. D- 2
  infantile....................................i. E- 25

Convulsions, infantile—etiology and treatment.....................ii. C- 52

Copper, therapeutic uses.............v. A- 45

Corns and warts, treatment.........v. A-110

Cornu cutaneum..........................iv. A- 15

Cornutine, therapeutic uses.........v. A- 52

Coronilla scorpioides....................i. B- 63

Coronillin......................................v. B- 28

Corpora quadrigemina, diseases (see Brain, diseases)..............ii. A- 52

Coryza (see also Rhinitis)............v. A- 12

Cranio-cerebral topography..........v. J- 10

Creasote (beechwood), guaiacol....v. B- 29
  therapeutic uses.,...................v. A- 45

Cremation and inhumation..........v. F- 25

THERAPEUSIS.

Club-foot (*continued*.)
  lateral traction appar., iii. F-54: manual traction, tenot. of tendo Achillis, cuneiform osteotomy, Lund's op. (remov. of astrag.), iii. F-57; Phelp's op., Holt's splint., Roth's elevating spring, iii. F-58.

Cocaine Habit.
  Withdrawal under seclusion, iv. I-11; grad. withdrawal, iv. I-12.

Cocaine, Toxic Effects.
  Acute.
    Chloral; inhala. of ether or chlorof., fol. by small doses of chloral, v. A-39.

Cœliac Affections in Children.
  Mainly dietetic: Asses' milk, whey, pounded raw meat, rusk with fresh butter, malted foods, ac. hydrochlor. useful add. to meat. *Avoid* starchy foods; peptonized foods of little value. *Medicinal*, bism., with op. if loose, watery stools. Tonics,—iron, ol. morrh., etc., i. E-14.

Coffee Narcosis.
  Pot. brom., ʒvj (24.0 grm.), in 2 doses, v. B-28.

Constipation.
  Adult.
    Electrical: Galvan. curr., neg. elect. well inside sphincter, i, D-4. Massage, with due regard to cause of constipation, v. A-90. *Medicinal:* Glycerin enemata and suppositories, pure or half water; dilatation of sphinct. ani, with after-care, diet, exercise, etc., i. D-3; infus. beet-root, ½ to 1 tumblerful, bed-time or early morn., v. A-22; Ext. cascaræ sagrad., ʒss to iij (2 to 12 grm.); eq. pts. of ol. ricin., syr. rhei arom., and cascara cordial, v. A-30; cocillana, gtt. x, v. A-43; glycerin, v. A-54.
  Infantile.
    Tinct. bellad., ♏1-6 (0.01 grm.), t. i. d., i. E-25; *when fol. diarrh.*, tonics, no cathart.; strych., ergot, phosphorus, iron; flannel abd. band., i. E-26; senna, prunes, and figs, mixt., v. A-122; infus. senna-pods., v. A-123; sulphur, v. A-135.

Convulsions.
  Infantile.
    Cold baths, antipyrin [gr. j to vj (0.07 to 0.4 grm.)]; acetanilide [gr. j to iij (0.07 to 0.2 grm.)]; chloroform to relieve spasm, ii. C-52; antipyrin, v. A-14; calcium sulphite, gr. 1-20 (0.0032 grm.), at 1 yr. of age, v. A-26.

Corns and Warts.
  Juice of plumbago kandeus, v. A-110.

Coryza. (See also Rhinitis, Acute.)
  Ammon. carb., large and freq. doses to abort, v. A-12; sol. camphor (1 to 500) in douche, v. A-26; tinct. euphrasia officin., gtt. x ev. 2 hrs., v. A-52; sod. sozoiodol sol. (5% to 7%) in douche or app. loc., v. A-124.

Croup.
  in Children.
    Inhalations of chloroform and ammonia, v. A-12; copper salt (?), gr. vj (0.4 grm.), daily, v. A-45; oxygen

AUTHORS QUOTED.

Coca Erythroxylon — Cocaine — Hare, Reichert, von Anrep, Danini, Mosso, Merck, v. B-16; von Anrep, Reichert, von Anrep and Danini, v. B-17; Mosso, Reichert, v. B-18; Stockman, v. B-19; Stockman, v. B-20.
  Therapeutic uses—Stockman and Rusby, Frank Woodbury, v. A-38; Hunt, F. Saltzmann, v. A-41.
  Toxic Effects—J. W. Perceval, Moizard, Mosso, Zauchevsky, anon., Lancet, Magnan, v. A-39; anon., James A. Myrtle, A. A. Armstrong, Stockman, J. C. Da Costa, F. X. Dercum, E. N. Brush, v. A-40; Zwaardemaker, Sandras, Laudtever, Decker, Hænel, Hänel, anon., Lépine, anon., John Wessler, v. A-41; Martin, Abadie, J. Henry Ashworth, A. Wölfler, J. Bettelheim, L. Kayser, Montalti, Charles H. Chetwood, v. A-42; R. Neilson, Winogradow, Joseph Bettelheim, Vinogradoff, v. A-43.
Cocaine Anæsthesia—
  Clinical Uses and Methods—Reclus and Isch Wall, Barton, iii. P-16; Long, Wyeth, Hunter McGuire, Pilcher, iii. P-17; Ignas Link, Freudenberg, iii. P-18.
  Dangerous Symptoms—Reclus, Isch Wall, iii. P-16; Barton, Wyeth, iii. P-17; Freudenberg, Judkins, Buscarlet, iii. P-19.
  Synthetic Cocaine—Einhorn, iii. P-16.
Cocaine Habit—
  Symptomatology and Toxicology—Magnan and Saury, iv. I-10; Heimann, J. C. Da Costa, Dercum, Brush, Morgan, Lennox Browne, iv. I-11; Richardson, Luff, iv. I-12.
  Treatment—Morgan, iv. I-11; Ingals, Luff, iv. I-12.
Cocaine Poisoning—
  in Nasal Treatment—Lennox Browne, Tuthill, Randall, iv. D-38.
Cocamine—Stockman, v. B-24.
Cocillana, Therapeutic Uses—S. F. Landry, David D. Stewart, H. H. Rusby, v. A-43.
Cocoa-nut, Therapeutic Uses—Parisi, v. A-44.
Cod-liver Oil—Ippolitoff, v. B-24; Mering, Lafage and Chapoteau, Ippolitoff, Bystroff, Kjedahl, Borodin, v. B-25.
  Therapeutic Uses—Gubb, Philip, Seig, Daremberg, Ippolitoff, Theodore Maxwell, v. A-44.
Cœliac Affection in Children—
  Etiology—Gibbons, i. E-12.
Coffee—
  Narcosis—Anon., v. B-28.
  Therapeutic Uses—Landarrabilco, Cohn, v. A-44.
Colchicine, Therapeutic Uses—Ch. Abadie, v. A-45.
Colchicum and Colchiceine—Ferrer y Leon, Merck, John Marshall, v. B-26; Marshall, Ferrer, v. B-27.
Cold Packs—Blagovêshchenski, v. B-27.
Collodion, Therapeutic Uses—Baset, R. de Latour, v. A-45.
Color-hearing—*L'Audition Colorée*—Raymond, iv. C-41.
Colotomy, Lumbar, Inguinal—Cripps, Littré, Reeves, Callisen, iii. C-39; Amussat, Batt, iii. C-40; Kelsey, Madyl, iii. C-43.
Condurangin, Composition—Kobert, v. A-45.
Constipation, Adult—Renaud, i. D-2; Anacker, Annual 1889, Griffith, Reisinger, Unger, Williams, Cleveland, i. D-3; Hammond, Garry, i. D-4.
  Infantile—Craigen, Vernon, i. E-25.
Convulsions—
  Infantile, Etiology and Treatment—Berg, Love, ii. C-52.
Copper, Therapeutic Uses—Schilling, Moricourt, Danet, Demoulin, Stocquart, v. A-45.
Cornu Cutaneum—Bland-Sutton, iv. A-15.
Coronillin—Gley and Schlagdenhauffen, v. B-28.
Cranio-cerebral Topography—Wm. Anderson and George H. Makins, Sylvius, Rolando, v. J-10.
Creasote (Beechwood)—Guaiacol—H. A. Hare, v. B-29.

GENERAL INDEX.

Creolin.....v. B- 28

as antiseptic.....iii. Q- 9
in diseases of newborn.....ii. L- 16
in obstetrics.....ii. J- 24
therapeutic uses and toxicology v. A- 47

Cresol, therapeutic uses.....v. A. 49

Croton-oil, toxic effects.....v. A- 50

Croup, in newborn—operations...ii. L- 10

Crozophoria tinctoria (see Tatuleth) v. A-135

Curcas, toxic effects.....v. A- 50

Cyclamin.....v. B- 45

Cylindroma of skin.....iv. A- 43

Cynara scolymus, therapeutic uses v. A- 50

Cyprus fever.....i. H- 78

Cysticercus.....i. F- 17

Cystinuria.....iv. K- 37

Cystitis (see also Bladder, diseases) i. G- 33
etiology and pathology.....i. G- 33
treatment.....i. G- 35
electricity in.....v. C- 11

Dead, disposal of the.....v. F- 25
cremation and inhumation....v. F- 25

Deafness, from otitis media......iv. C-15, 17
from parotitis, total.....iv. C- 27
from scarlatina.....iv. C- 27
hereditary.....iv. C- 39
hysterical.....iv. C- 41

Death by drowning.....iv. J- 15
by hanging.....iv. J- 16

Delirium cordis.....i. B-34, 40

THERAPEUSIS.

Croup (*continued*).
inhala., q. s., v. A-102; pure petroleum, v. A-105; aspidospermine, gr. 1-500 to 1-100 (0.00015 to 0.0007 grm.); quebracho, v. A-114.

in Newborn.
Intubation, when *simple cat. sten.*; or *in prim. croup with laryng. sten.*, where careful after-treat. is impossible. Tracheot. is less desirable, ii. L-11.

Cystitis.
Careful faradization, v. C-11; tinct. hysterionica Baylah., v. A-80; pichi, v. A-109; terebene, v. A-135.

Gonorrhœal Form.
Hot irriga. of subl. sol. (1 to 30,000), ℥xxx to lx (930.0 to 1860.0 grm.), 2 t.d., incr. strength of sol. ev. d., i. G-36.

in Female.
Dilate urethra; swab vesical surf. with glyc. of ac. carbol. once wk. for sevl. wks., i. G-36.

with Incrustation of Vesical Walls.
Scrape walls with lithotrite; wash with hot sol. ac. boric. Cocaine for pain; wash cav. with tep. water, then ev. 3 d. throw in sol. of iodof. in glyc. and gum trag.; salol, saccharin, pichi, Pareira brava; dry heat, with double bougie. i. G-35; copaiba. *If paresis of detrusor*, Heddaeus' meth. *If advanced*, supra-pubic cystot., antisep. washing. Tap bladder, wash out through canula, i. G-36. *If alk. fermentation*, saccharin intern., i. G-37.

Deafness.
Hereditary.
Prophyl., diet, exerc., hygiene; anti-arthrit. or anti-syph. treat.; treat nasopharyn. and throat complica. When inflam. appears in tympano-Eustach. tract, subdue at once; inflate tymp. cav. systemat. for some time to prev. ankylosis or organisa. of fibr. bands. If adhesions form, surg. means may be necess. for remov., iv. C-40.
Hysterical.
Hypnotism, iv. C-41.
Dengue.
Sod. salicyl. [gr. iv to xxx (0.25 to 2.0 grm.)]: antipyrin [gr. iv to xxx (0.25 to 2.0 grm.)]; lemonade charged with ac. carbonic. *ad. lib.*, chloral and opium for insomnia; grog and bouillon, hot or cold: during convalesc., eggs, chicken, and beef, i. H-65.
Dental Treatment. (See also Toothache.)
Hygiene.
Clean teeth at bed-time with castile-soap and wat., fol. by sol. of menth. pip. as mouthwash; use dental silk-floss to clean betw. teeth, iii. J-12.
Extracted Teeth.
Transpl. of devitaliz. teeth, iii. J-12.

AUTHORS QUOTED.

Creasote (*continued*).
Therapeutic Uses—Schetelig, v. A-48; L. Jumon, Bourget, A. Atkinson, J. Sommerbrodt, Karpow, H. A. Hare, Petresco, Bouchard, J. Sommerbrodt, Seitz, Marcard, v. A-46.
Creolin—Sirena and Alessi, Koch, v. B-28.
as Antiseptic—Hünermann, Behring, Baumgarten, Eisenberg, Seidel and Hörnicke, Kortüm and Bunsen, Rausche, Amon, Prutscher, Purjesz, Späth, Pieskoff, Roux, Diakonoff, Lenevitch, Baumgarten, iii. Q-9; Fröhner, iii. Q-10.
in Diseases of Newborn—Garrigues, Schwinz, ii. L-16.
Therapeutic Uses and Toxicology—Edward O. Otis, Cramer, Ignaz Jurjesz, R. Otto and H. Beckurts, Th. Weyl, Artmaun and Jeyes, L. A. Stimson, Plenis, Schwinz, Bednar, v. A-47; Lebovicz, Max Kortüm, Delbreil and Lemoine, Rosin, Van Ackeren, Max Kortüm, Pearson, H. Cramer, Jessner, F. Spaeth, Annual 1889, v. A-48; Neuhaus, Stille-Ihlienworth, Roux, Cramer, v. Ackeren, v. A-49.
Cresol, Therapeutic Uses—Nencki, v. A-49.
Croton-oil, Toxic Effects—Schulz, v. A-50.
Croup—
in Newborn, Operations—Caillé, ii. L-10.
Curcas, Toxic Effects—Schnell and Lure, v. A-50.
Cyclamin—Kobert, Tufanow, v. B-45.
Cynara Scolymus, Therapeutic Uses—W. W. Lane, v. A-50.
Cyprus Fever—John G. Carageorgiadès, i. H-78.
Cysticercus—H. B. Robinson, Lancereaux, i. F-17; Lancereaux, Hirt, Nivet, Kohler, Bernard, Aran, Clémenceaux, Frédet, Harrington, i. F-18.
Cystinuria—Baumann, Goldmann. iv. K-37; Brieger, Stadthagen and Brieger, Baumann, Leo, Czapek, iv. K-38.
Cystitis—
Etiology and Pathology—Silcock, i. G-33; Przewoski, Brown, White, Casper, Guyon, Fenwick, Guyon, Hartmann, Weir Mitchell, Verneuil, Semeleder, Callionzis, i. G-34; Bryson, Tricomi, i. G-35.
Treatment—Lavaux, Frey, Vansant, Smith, Nash, McNulty, Hoyt, i. G-35; McMechan, Palmer, Heddaeus, Chico, Francisco Bassetti, Madden, Emmet and Sims, Bazy, Maguire, Foy, Fehleisen, Davis, Belin, i. G-36; Smith, i. G-37.

Dead, Disposal of the—
Cremation—P. de Pietra Santa, Guichard, v. F-25; French Council of State, Congress of Cremation, F. Eklund, V. Ackermann, Detroit Bd. of Health, v. F-26.
Inhumation—Ch. of Eng. Burial Ref. Assn., Frederick A. A. Smith, v. F-25; Johnson Herbert, v. F-27.

Deafness—
from Otitis Media—Eitelberg, iv. C-15; C. H. Burnett, iv. C-17.
from Parotitis, Total—Barr, iv. C-27; Roosa, Ollivier, Buck, iv. C-28.
from Scarlatina—L. Katz, iv. C-27.
Hereditary—Boucheron, iv. C-39.

Death by Drowning—Mackenzie, iv. J-15.
by Hanging—Coutagne, Tardieu, iv. J-16; Lacassagne, Richardière, Viebert, Hofmann, Gosse, Brouardel, iv. J-17.

Dengue—De Brun, i. H-63; Christoph, de Brun, Floras, anon., Hyrtl, i. H-65.
Epidemics of—Hamilton, iv. M-6.

GENERAL INDEX.

Dengue ... i. H- 63
  epidemics of ... iv. M- 6

Dental pathology and treatment ... iii. J- 12
  devitalized teeth, treatment ... iii. J- 12
    transplantation of ... iii. J- 12
  diagnosis, surgical ... iii. J- 12
  hygiene ... iii. J- 12
  irregularities ... iii. J- 12
  mouth-washes ... iii. J- 13
  mycological literature ... iii. J- 13
  wisdom-tooth, development ... iii. J- 12

Dentition ... i. E- 6
  delayed ... i. E- 7
  order of ... i. E- 6
  period of ... i. E- 6
  premature teeth ... i. E- 7
  relation to digestive diseases ... i. E 7
  treatment and hygiene ... i. E- 8

Dermatitis (burns and scalds) iv. A-49, 50, 57
  exfoliative congenital ... ii. L- 18
  gangrenosa infantum ... iv. A- 47
  herpetiformis, treatment ... iv. A- 6

Diabetes insipidus (see Polyuria), iv. K- 1

Diabetes mellitus, in adult ... i. L- 1
  age ... i. L- 10
  co-existence in husband and wife ... i. L- 12

THERAPEUSIS.

DENTAL TREATMENT (*continued*)

MOUTH-WASHES.

Eau dentif. du Dr. Pierre, salicyl. mouth-wash (German), eucalyptol mund-wasser, aq. menth. pip. ℞ Alcoh., 370 p.; ac. carbol., 10 p.; thymol, 5 p.; ol. m. pip., 15 p.; tinct. anisi, 100 p.—M. Sig.: May be col. with tinct. cocci co. Use ev. m. and ev., with weak sol. ac. boric., iii. J-13; salol tooth-wash, v. A-122.

DENTITION.

Lance gums if necess.; *avoid* rings and emollients; clean mouth with water or wk. sol. ac. boracic. or sod. salicyl., i. E-8.

DERMATITIS. (See also Burns.)

Carron-oil contain. creolin (5%), iv. A-49. ℞ Pot. sozoiodol, 1 p.; amyli vel talcis, 9 p.—M., iv. A-50. Emuls. of eq. pts. of sat. sol. borax and ol. lini.; apply till slough separates. If much pain, cocaine sol. (p. r. n.), ungt. zinci oxidi, iv. A-57.

HERPETIFORMIS.

Arsenic [Fowl. sol., gtt. j to v, post-prand.]; ergotin, quin. hydrobr., āā gr. iv to viij (0.25 to 0.5 grm.), ev. d. ℞ Ergot, gr. xvj (1 grm.); ext. bellad., gr. 4-5 (0.06 grm.), ev. d. Arsenic sol. (Fowl.); valer., asafœt., pot. brom., int., and acid carbol., chlorof., etc., ext.; oint. of sublimate and hyoscy., bellad., morph., or cocaine; lot. of aq. chlorof., fol. by powd. talc and inunct. with cal. and bellad. oint. *In severe cases*, use narcot., and, if *erup.* is *pemphigoid*, powd. of talc and thymol as disinfect., iv. A-6.

DIABETES, IN ADULT.

DIETETIC.

Bran and Graham bread, bran and gluten bread, i. L-19; soya bread, bread from embryo of corn, i. L-20. Avoid over 2½% sugar in wines, unless the sugar is levulose; brandy and wine of purity allow. in small quant.; beer is allow. in mod. quant. only (diuret. act.), i. L-19; saccharin not recommended, i. L-20; Soja or Sooja bread, v. A-123.

ELECTRICITY.

Loc. faradiza. of kidneys, v. C-11.

GENERAL MANAGEMENT.

Almond-flour bread in mod. *In mild cases of reflex origin*, skimmed-milk cure. *In severe cases of centric origin*, avoid milk. "Dujardin-Beaumets's regimen:" No milk, 3¼ ozs. (100 grm.) boiled potatoes at each meal; avoid brown bread, fatty foods, pork-meats; use saccharin for sweetening beverages, max. daily dose, gr. iss (0.10 grm.); use tea and coff.; pot. brom., antipyr.; musc. exercise, i. L-22, 27. "*Cantani's treat.*:" Ammon. salts, quinine, pilocarpine, digitalis, bromine salts, lactic acid and salts aid digestion; alkaline compounds help the antidiabet. diet; alk. waters, Carlsbad, Vichy, Fels, Neuenahr. alkalies, carb. and sulphates; exclusive use of album. and fatty foods for long time, fol. by grad. ret. to

AUTHORS QUOTED.

DENTAL PATHOLOGY AND TREATMENT—E. L. Townsend, E. S. Talbot, Samuel Sexton, Jonathan Hutchinson, R. Levi, J. S. Marshall, Andrews, William Caillé, Richter, A. L. F. Buxbaum, Kirchhofer, iii. J-12; W. D. Miller, Gallipe, Vignal, P. E. Archivard, Pierre, Gallipe and Malassez, iii. J-13.

DENTITION — Forchheimer, Ambrose Paré, Hunter, i. E-6.

  ORDER OF—Jacobi, i. E-7.

  RELATION TO DIGESTIVE DISEASES—Adams, i. E-7.

  TREATMENT AND HYGIENE—Crow, Monte, Stryker, i. E-8.

DERMATITIS (BURNS AND SCALDS)—Casati, Ducrey, iv. A-49; Ostermayer, iv. A-50, Illingworth, iv. A-57.

  EXFOLIATION, CONGENITAL—Rutter, Elliott, ii. L-18.

  GANGRÆNOSA INFANTUM—Moore, iv. A-47.

  HERPETIFORMIS — Blaschko, Brocq, Dubreuilh, iv. A-6.

DIABETES—James Tyson, i. L-1.

DIABETES MELLITUS, IN ADULT—

  CO-EXISTENCE IN HUSBAND AND WIFE—Debove, i. L-12; Lecorché, Rendu, Gaucher, Letulle, Labbé, Dreyfous, Debove, R. Tilley, i. L-13.

  COMPLICATIONS—

    DIABETIC COMA—E. Stadelmann, i. L-15; Stadelmann, Minkowski, i. L-16; Stadelmann, Küly, Minkowski, i. L-17.

    DIABETIC GANGRENE — Max Schüller, T. G. Morton, i. L-17.

    LIPÆMIA—Joseph Coates, i. L-15.

    OPHTHALMIC LESIONS—Stoever, i. L-17.

    PNEUMONIA — Seegen, Riegel, Fink, i. L-17.

    TUMORS—Tuffiet, i. L-17.

GENERAL INDEX.

Diabetes mellitus, in adult (*continued*).
- complications....................i. L- 15
  - diabetic coma....................i. L- 15
  - diabetic gangrene....................i. L- 17
  - lipæmia....................i. L- 15
  - ophthalmic lesions....................i. L- 17
  - pneumonia....................i. L- 17
  - tumors....................i. L- 18
- etiology....................i. L- 1
- morbid anatomy....................i. L- 9
- nature and pathogenesis....................i. L- 3
- prognosis....................i. L- 14
- symptomatology....................i. L- 13
  - carbonic-acid exhalation....................i. L- 13
  - loss of tendon reflex....................i. L- 13
- treatment....................i. L- 18
  - dietetic....................i. L- 18
    - flours....................i. L- 18
    - bread from embryo of corn.i. L- 20
    - saccharin....................i. L- 20
    - soya-bread....................i. L- 20
  - electricity in.................... v. C- 11
  - general management....................i. L- 21
    - Cantani's regimen....................i. L- 23
    - Dujardin-Beaumetz's regimen....................i. L- 22
  - gymnastic treatment....................i. L- 25
  - medicinal treatment....................i. L- 25
    - antipyrin....................i. L- 25
    - arseniated lithia....................i. L- 27
    - cocaine....................i. L- 29
    - creasote....................i. L- 29
    - glycerin....................i. L- 29
    - jambul....................i. L- 28
    - opium alkaloids....................i. L- 27
    - phenacetin and exalgine..i. L- 27
  - of complications....................i. L- 29
    - cataract in diabetes....................i. L- 33
    - diabetic coma....................i. L- 29
    - diabetic eczema....................i. L- 33
    - diabetic gangrene....................i. L- 31
    - hygienic prophylaxis....................i. L- 34
    - syphilitic diabetes....................i. L- 33

THERAPEUSIS.

DIABETES, IN ADULT (*continued*) mixed diet, i. L-22. *For 3 mos.*, meat diet, fish, anchovies, herring, sardines, tunny, cod, salmon; crustacea and sea-products: eggs, bouillon, viscera of animals, *except liver;* boiled ham, pancreat. an. fats (espec. lard, but also butter) and oils, with salt and occas. pepper; black coffee and black tea, *without sugar; For wine, use* rectif. alcoh. with carbon. water, with fennel, anise, mints, cinnamon, and orange-flower water; *For vinegar* (if not free from glucose), ac. citric. in water in min. quant.; *avoid* flours, sugars, fruits, milk and milk foods, brandy and rum, green vegetables, i. L-23. *In fourth month*, grad. return to mixed diet. green veget., walnuts, hazel-nuts, almonds, pinole, olives; *fifth month*, old cheese, fresh milk and milk-foods: *sixth month*, old acid wines, fruits (not too sweet): *seventh month*, flour-made foods, but sparingly, never permitting cane-sugar or fruits containing much sugar, as dates, figs, etc., i. L-24.

GYMNASTIC.

Available in all localities, i. L-25.

HYGIENIC PROXHYLAXIS.

Antisept. mouth-washes; avoid fatigue or exposure or long journeys; tepid baths for pruritus and eruptions; sponge genitals with tepid water freq., dry, and dust with rice-powd. or Fuller's earth; avoid even trivial traumat. lesions of skin, i. L-34.

MEDICINAL.

Antipyrin, two 10-gr. (0.6 grm.) doses daily, i. L-25. ℞ Antipyr., gr. xv (1.0 grm.); sod. bicarb., gr. xxx (2.0 grm.)—M. Sig.: Give 3 or 4 t. daily, 1 hr. bef. or after meals, for 8 to 12 days. Suspend treat. until sugar returns or incr. (for 1 wk). When taking antipyr., give mod. amt. of starchy food, but discontinue during intermission, i. L-26; antipyr., gr. x (0.7 grm.), with saccharin, t. i. d., i. L-27, v. A-16. Opium alkaloids: Codeine less powerful than op. or morph., i. L-27. Sod. sozoiodal, gr. xxx (2 grm.), daily; unrestricted diet, v. A-124. Arseniated lithia—"Dujardin-Beaumetz method": Lith. carb., gr. viij (0.5 grm.); Fowler's sol. gtt. ij, in glass of Vichy, i. L-27. Phenacetin [gr. iv to x (0.25 to 0.7 grm.)] and exalgin [gr. iij to vj (0.20 to 0.40 grm.)], i. L-27; quinine, gr. iij to v (0.20 to 0.30 grm.), contin.; arsenic and opium [small doses]; jambul ext. [gtt. vj to viij], i. L-28; creosoti, gtt. iv to x, per diem; cocaine, gr. ¼ (0.016 grm.), t. i. d.; glycerin intern. [ʒi (4 grm.)], i. L-29; chloral and tragacanth for vesication, if necess., v. A-31.

COMPLICATIONS.

CATARACT.

Extraction, except emac. and debil. are extreme, but with antisept. precautions; Previous antidiabet. treat.; avoid op. if grave amblyopia,

AUTHORS QUOTED.

DIABETES MELLITUS, IN ADULT (*continued*).

ETIOLOGY — Wm. Hunt, D. G. Luce, Bacelli, Vogel, von Ziemssen, A. B. Sweet, Ivan Michael, i. L-1; Steinbrügge, James McNish, Jaques Mayer, von Ziemssen, i. L-2.

MORBID ANATOMY—P. Ferraro, Frerichs and Ewald, Schüller, Griessinger, König, Israel, Zeller, Röse, Cantani, i. L-9; R. Fichtner, Henle, Frerichs, Ebstein, i. L-11.

NATURE AND PATHOGENESIS—Von Ziemssen, Arnold Cantani, i. L-3; Cantani, Ebstein, i. L-4; Cantani, Arthur Fagge, James Anderson, Claude Bernard, i. L-5; G. Arthaud and L. Butte, Lancereaux, von Mehring and Minkowski, i. L-6; Germain Seè and E. Gley, von Mehring, Seegen, Albert Robin, i. L-7: Germain Seè, Jules Worms, Robin, Trousseau, Dujardin-Beaumetz, Robin, i. L-8; Dujardin-Beaumetz, Meyer, Ferraro, Bernard, i. L-9.

PROGNOSIS—Jules Worms, i. L-14.

SYMPTOMATOLOGY—

CARBONIC-ACID EXHALATION—Livierato, i. L-13.

LOSS OF TENDON REFLEX — Nivière, Bouchard, Jendrassik, i. L-13; Nivière, i. L-14.

TREATMENT, DIETETIC — Charles Harrington, ANNUAL, 1889, John A. Jeffries, Woltering, ANNUAL, 1889, Arnold Pollatschek, i. L-19, Blonchel, Lecerf, Dujardin-Beaumetz, G. Pouchet, Danpye, Bruylants, i. L-20.

GENERAL MANAGEMENT — Charles W. Purdy, i. L-21; Dujardin-Beaumetz, Cantani, i. L-22; Cantani, i. L-23; Cantani, i. L-24.

GYMNASTIC TREATMENT—Aye, i. L-25.

MEDICINAL TREATMENT—J. E. Kibbe, D. Gonner, Huchard, A. Robin, Dujardin-Beaumetz, Germain Sée, Panas, i. L-25; Robin, Panas, Germain Sée and E. Gley, i. L-26; Lépine and Porteret, Kibbe, Thomas R. Frazer, Dujardin-Beaumetz, Martineau, i. L-27; Jules Worms, Gräser, i. L-28; Valentine, Thomas Oliver, Ransom, i. L-29.

GENERAL INDEX.

Diabetes mellitus, in children......i. L- 10
  duration and prognosis..........i. L- 12
  etiology..........i. L- 10
  pathology..........i. L- 11
  treatment..........i. L- 12

Diaphoresis, elimination of drugs by v. B- 52

Diarrhœa, adult, acute..........i. D- 1
  etiology..........i. D- 1
  treatment..........i. D- 2

Diarrhœa, adult, chronic..........i. D- 2
  treatment..........i. D- 2

Diarrhœal diseases, in children.....i. E- 14
  diarrhœa, infantile..........i. E- 14
    etiology..........i. E- 14
    prophylaxis..........i. E- 20
    treatment..........i. E- 21

Dieffenbachia rex, toxic effects...v. A- 50

THERAPEUSIS.

DIABETES, IN ADULT (*continued*).
symmetr. hæm. of retin., and atrophy of opt. nerve, i. L-34.
COMA.
If early, inject into veins a (3% to 4%) sol. of sod. carbon. in sol. of sod. chloride (7%), to neutralise oxybutyric acid. ℞ Ac. citric, gr. cxxiij (8.0 grm.); sod. carb., cclxxviij (18 grm.); saccharin, gr. iss to iij (0.1 to 0.2 grm.); aq. destil., ℥iv ʒvj (150 grm.); essent. m. p., gtt. iij—M. Sig.: Give 3 times in 24 hrs. ℞ Sod. tart., ℥j (30 grm.); aq. ac. carbon., ℥viss to ixss (200 to 300 grm.); saccharin, gr. iij to ivss (0.2 to 0.3 grm.); essent. limonis, gtt. vss—M. Sig.: Give 1 to 3 times daily. ℞ Sod. acet., ʒiiss 10 grm.); aq. ac. carbona. (℥ij ʒvij (90 grm.); saccharin, gr. iss (0.1 grm.); Essent. limonis, gtt. iiss—M. Sig.: 3 or 4 t. daily, i. L-30.
ECZEMA.
℞ Ungt. of bismuth [p. 2]; ac. pyrogallic [p. 1]; adipis [p. 8]—M. Sig.: Apply twice daily after washing with strong decoct. of quercus alba. ℞ Infus. quercus alb., ext. hydrastis fld., ext. eucalypt. fld., āā p. æq.—M. ℞ Hg. chlor. mit., gr. xx (1.3 grm.); plumbi acet., ʒss (2 grm.); ext. bellad., gr. xv (1 grm.); bism. subnit., ʒj (4 grm.); zinci carb., ʒss (2 grm.); adip. benzoat., ʒij (62 grm.)—M. Sig.: Apply once daily, after painting twice daily with phénol-sodique, i. L-33.
GANGRENE.
Avoid op.; antisepsis, i. L-31.
SYPHILIS.
Antisyph. treat. (innunct. of mercury, and pot. iod. intern.), i. L-33.

DIABETES, IN CHILDREN.
DIETETIC.
As in adults; also with bath-cure, as at Neuenhar, Carlsbad, and Vichy.
MEDICINAL.
Alkalies (bicarbonates), i. L-12.

DIARRHŒA, ADULT, ACUTE.
DIET.
Animal food; beef; hot water, 110° to 120° F. (43.3° to 49° C.), sipped 1 hr. bef. meals; milk warm from the cow, i. D-2; kola-nut, substitute for tea or coffee, v. A-85.
MEDICINAL.
Naphthalin, gr. viiss (0.5 grm.), 4 t. daily in *fœtid diarrh.*; coffee, ground and burnt with lemon-juice and pulp, 2 or 3 t. daily, i. D-2.; tinct. hysterionica baylah.; or infus. (1 to 150), v. A-80.

DIARRHŒA, ADULT, CHRONIC.
MEDICINAL.
Magnes. silicate in milk, ʒvj to xviij (23 to 62 grm.), daily; bismuth salicyl., gr. vj (0.39 grm.), t. i. d., i. D-2, v. A-23.

DIARRHŒAL DISEASES IN CHILDREN.
DIARRHŒA, INFANTILE.
PROPHYLAXIS.
Attend carefully to every case of dyspeptic diarrh., even if mild, i. E-20. Freq. bath; proper exercise and clothing: cleanliness; pure food; sterilizа. of milk; disinfect. of diapers and discharges during hot season, i. E-21.

AUTHORS QUOTED.

DIABETES MELLITUS, IN ADULT (*continued*).

TREATMENT OF COMPLICATIONS—

CATARACT IN DIABETIS—Stoeber, i. L-33.

DIABETIC COMA—Stadelmann, i. L-29; Stadelmann, von Ziemssen, i. L-30.

DIABETIC ECZEMA—H. V. Neiman, J.V. Shoemaker, i. L-33.

DIABETIC GANGRENE — Max Schüller, Koenig, ANNUAL 1889, i. L-31; Schüller, Albert Hoffa, L. Landau, i. L-32; Verneuil, Hoffa, i. L-33.

HYGIENIC PROPHYLAXIS—Renault, i. L-34.

SYPHILITIC DIABETES—Lemonnier, i. L-33.

DIABETES MELLITUS, IN CHILDREN—

DURATION AND PROGNOSIS — Curt Stern, i. L-12.

ETIOLOGY—W. J. Scott, A. B. McCrea, Curt, Stern, Külz, i. L-10.

PATHOLOGY—Von Jaksch, Frerichs, Reimer, Voltolini, Greissinger, i. L-11; von Jaksch, Frerichs, i. L-12.

TREATMENT—Curt Stern, Dudley P. Allen, i. L-12.

DIAPHORESIS—

ELIMINATION OF DRUGS BY—A. Golberg, i. v. B-52.

DIARRHŒA, ADULT, ACUTE—

ETIOLOGY—Ballard, F. S. Sellen, Moore, i. D-1.

TREATMENT — W. W. Van Valzah, Holsti, Khristoff, i. D-2.

DIARRHŒA, ADULT, CHRONIC—

TREATMENT — Hoffmann, Mikhaeloff, i. D-2.

GENERAL INDEX.

Digestion, physiology.................v. I- 37
bile, secretion, experiments....v. I- 41
fats, intestinal absorption.......v. I- 39
stomach digestion...............v. I- 38
stomach of pig, diastasic ferment in...............................v. I- 38
sugar, assimilation of.............v. I- 37
water and solids in tissues......v. I- 42

Digestive organs in children, diseases of...............................i. E- 1

Digitalis, therapeutic uses.........v. A- 50

Dimethylxanthin, alkaloid..........v. A- 51

Dioscorea villosa, therapeutic uses v. A- 51

Diphtheria...................................i. J- 1
epidemics of........................iv. M- 4
geographical distribution.....v. E- 36
pathology and etiology............i. J- 1
prophylaxis...........................i. J- 3
sequelæ and complications......i. J- 4
treatment.............................i. J- 4

Diphtheria, pertussis, and parotitis.i. J- 1

THERAPEUSIS.

Diarrhœal Diseases in Children (*continued*).

Treatment.

Irriga. of colon: evac. in *prelim. stages* (calomel, ol. ricini, rheum. salines). *Later stages:* antiseptics. *Diet: When stools are foul*, give carbohydrates (dextrine, sugar, etc.); *when thin, sour stools*, give album. foods, i. E-21. *Medicinal:* zinc oxide, gr. ss (0.032 grm.), ev. h. with astring.; zinc sulphocarbolate, gr. ss to ij (0.032 to 0.13 grm.) ev. 2 h. Calcium salicylate: ℞ Ac. salicyl., gr. xxij (1.43 grm.); cretæ præcip., gr. viij (0.52 grm.)—M. in chart. no. vj div. Sig.: One ev. 2 h. in water. ℞ Ac. salicyl., gr. xxx (1.94 grm.); cretæ præcip., gr. x (0.65 grm.); glycerinæ, ʒj (4 grm.); aq. rosæ, ʒxiv (54.0 grm.)—M. Sig.: A teasp. ev. h. to child of 1 yr. Sod. salicylate; salol, in gastroenteric form; hydrarg. biniod., in green diarrh., gr. 1-50 (0.001 grm.) in sol. pot. iod.; hydrarg. bichlor., gr. 1-120 to 1-100 (0.0005 to 0.0006 grm.), i. E-23; calomel, in initial stage and throughout dis., gr. 1-20 to 1-10 (0.003 to 0.006 grm.), freq. repeat.; pepsin; pancreatin; cocaine, gr. 1-6 ev. 2 h. with bism., when much vom.; pulv. Doveri, gr. 1-10 to 1-3 (0.006 to 0.021 grm.); morphine and atropine hypod., i. E-24; irriga. (lukew. water; if collapse, use hot); glycerin injec., if *prolapsus ani*, ʒij (7.8 grm.); cold to spine and head; cold bath; cold water by mouth, i. E-25.

Dysentery, Infantile.

In beginning, castor-oil or calom.; cold appl. to abdm. *If intest. ulcers*, op. ad. tolerance; irriga. with tepid sol. alum, or tannin sol. (1 %); *when chr.*, silver, i. E-25.

Diphtheria.

Prophylaxis.

Isolation and antisepsis: (1) prolonged isol. of pat. in spec. wards; (2) isol. of sick and, as nearly as poss., of attendants, i. J-3; (3) watchful care over those sickening with the dis.—bro., sist., etc.; (4) elim. of suspects from schools; (5) immed. disinfect. of pat. and his linen; (6) care not to spread dis. through attend.; (7) disinfect all utensils used by pat.; also room. All bed-linen soaked 24 hrs. in 2 % ac. carbol. sol., then boiled 1 hr. and washed in strong soap-suds. Rub furniture with cloths wet with 5 % carbol. sol., i. J-4.

General Treatment, Internal.

2 % sol. hydrog. perox. or 5 % sol. sod. hyposulphite, 1 teasp. ev. 2 hrs. Tinct. ferri. chloridi, to inft. 1 yr., ʒj (4 grm.), daily; 5 yrs., ʒij to iij (8 to 12 grm.) daily; giv. freq. diluted so dose is teasp. ev. 15, 30, or 60 min.; vom. and diarrh. are contra-indica., i. J-5; calomel, gr. v to xv (0.32 to 1 grm.) ev. 2 or 3 hrs., till greenish stools app.; avoid saliva. by combin. pot. chlorat., gr. v. to viij (0.32 to 0.52 grm.); cal. fumiga., ʒss (2.0 grm.), used under tent ev. 3 to 6 hrs.; cal.

AUTHORS QUOTED.

Diarrhœal Diseases, in Children—

Diarrhœa, Infantile—

Etiology—Henry Tompkins, i. E-14; Edward Ballard, Klein, I. M. Snow, i. E-15; Dawson Williams, L. Emmett Holt, i. E-16; H. M. Biggs, i. E-18; Tompkins, Iedeschi, i. E-19.

Prophylaxis—L. Emmett Holt, i. E-20; Davis, i. E-21.

Treatment—Kolbasenko, Waugh, Humphreys, Carhartt, i. E-22; Ayers, W. L. Carr, Brothers, Illingworth, Ayers, Luff, i. E-23; E. P. Davis, Claiborne, Jacobi, Stockwell, Lichtermann, Larabee, Luff, Meyer, i. E-24; Babcock, Davis, Geo. Rice, Peter Hooper, i. E-25.

Dieffenbachia Rex, Toxic Effects—Fred Farrow, v. A-50.

Digestion, Physiology—

Bile, Secretion, Experiments—Copeman and Winston, v. I-41; Rohmann, Voit, Annual 1888, MacMunn.

Fats, Intestinal Absorption—Le Marinel, Gruenhagen, v. I-39; Flemming, v. I-40.

Stomach Digestion—Klemperer and Scheurlen, v. I-38.

Stomach of Pig, Diastasic Ferment in—Southall and Haycraft, v. I-38.

Sugar, Assimilation of—Hofmeister, v. I-37; Heidenhain, Annual, 1889, Ginsberg, v. I-38.

Water and Solids in Tissues—Lukjanow, v. I-42.

Digestive Organs in Children, Diseases—L. Emmett Holt, i. E-1.

Digitalis, Therapeutic Uses—Huchard, Potain, Sée, Bardet, Armand, v. A-50.

GENERAL INDEX.

Diptera, larvæ (pseudo-parasites)..i. F- 23

Disease distribution—local influences v. E- 32
in British Isles.....................v. E- 33

Disinfectants.............................iv. M- 8
moist heat.............................iv. M- 8
sulphurous-acid gas.............iv. M- 8
thiocamph...............................iv. M- 8

Dislocations...............................iii. H- 5
carpus.....................................iii. H- 10
hip..iii. H- 12
humerus..................................iii. H- 8
knee, congenital.....................iii. H- 14
metacarpal bone.....................iii. H- 11
old, treatment.........................iii. H- 8
phalanges...............................iii. H- 11
radius.....................................iii. H- 10
ribs..iii. H- 6
shoulder..................................iii. H- 6
ulna (forward).........................iii. H- 10
vertebræ (cervical).................iii. H- 5

THERAPEUSIS.

DIPHTHERIA (*continued*).
in small dos. oft. repeat., i. J-6; sod. benz. with chloral hyd. loc.; bichloride, i. J-7.

LARYNGEAL.
Papayotin, 50% sol. in aq. and glyc. through tracheot. tube, i. J-4. Intuba.: If intuba. fail, perf. tracheot., i. J-6. Spray of liq. calcis, i. J-9; adhatoda justicia, v. A-7; oxygen inhala., v. A-102; ozone, v. A-103; volatiliza. of ess. pinus pumilio in room, v. A-110; pot. iod. and chlorate, āā gr. v (0.33 grm.), ev. ½ h., v. A-111.

NASAL.
If nose is blocked, dip silver probe in ac. carbol., or wrap in absorb. cot. moist with 50% to 90% ac. carbol., and push through mass: then use inject. of ⅔ of 1 per cent. sol. sod. chlor., sat. sol. ac. boric. liq. calcis, papayotin. sodii hypophosphite, 5% sol. hydrog. peroxide, or: ℞ Hydrarg. bichlor., 1 p.; sod. chloridi, 35 p.; aq., 5000 p.—M. Use all sols. warm, and short, stout, glass syr. with soft-rubber tip, or Davidson atomiser, with intern. treat., i. J-5.

NASO-PHARYNGEAL.
If large gland. swelling, weak heart, freq. pulse through sepsis, with weak stomach, when strong stimula is req., leave off iron; give hy. bichlor: at 4 mos., gr. ¼ (0.016 grm.) daily; at 3 to 5 yrs., gr. ss (0.032 grm. daily for 4 to 8 d. or longer, doses varying from gr. 1-60 to 1-30 (0.001 to 0.002 grm.) dil. to 1-6000 or 1-10,000 in wat. or milk; if gastr. or intest. irrita. occur, incr. dilut. and give small dos. of opium, i. J-5. Sol. ac. salicyl. (1 to 2000) by irriga. or syr. to naso-phar.; poured into nares with spoon. Sol. ferri perchlor. 2 t. d., with freq. irriga. of sat. sol. ac. boric. Irriga. of phar. and nares ev. ½ hr. or oft.; ac. sulphurous or pulv. sulph. by insuffl., with calc. sulphide, ac. sulphurous, sod. sulphite. or bisulphite or sulph. loti intern., i. J-6. ℞ Papain, ʒij (8 grm.); hydronaphthol, gr. iij (0.2 grm.); ac. hydrochlor. dil., gtt. xv (0.97 grm.); aq. dest., ad ʒiv (15.5 grm.)—M. Sig.: Spray throat ev. hour. Sol. pot. permang. (1 to 240) loc.; bichlor. sol. (1 to 500) loc. and gr. 1-16 to 1-12 (0.004 to 0.006 grm.) int., i. J-7. Insuffla. ac. salicyl.; resorcin by fumiga. and by insuffla.; tear off false memb. and app. ac. carbol. to bleeding surf. p. r. n.: tinct. iodi. loc. once daily, i. J-7. Inhala. of oxygen; iodof. insuffl.; eq. pts. of quin. and sulphur insuffla. into laryn., pharyn., nares, and on tonsils 2 t. d., nothing in mouth for 2 hrs. after; bichlor., gr. 1-32 (0.002 grm.). incr. till effect. Simon's meth.: ℞ Ac. salicyl., 0.50 to 1.0 p.; alc., q.s. ad ft. sol.; glyc., 40 p.: infus. eucalypt., 60 p.—M. Sig.: App. ev. hr. in day and 3 t. in night. *When memb. thick and adher.*, touch 2 to 4 t. d. with ℞ Tinct. ferri chlor., glyc., āā 10 p.—M. Ev. 2 hrs. fol. by warm irriga. of ac. carbol.,

AUTHORS QUOTED.

DIMETHYLXANTHIN, ALKALOID—Kossel, v. A-51.

DIOSCOREA VILLOSA, THERAPEUTIC USES—J. V. Shoemaker, v. A-51.

DIPHTHERIA—
EPIDEMICS OF—H. Barbier, anon., iv. M-4; Bruhl and Johr, Kentucky State Bd. of Health, iv. M-5.

GEOGRAPHICAL DISTRIBUTION—Langstaff, v. E-36.

PATHOLOGY AND ETIOLOGY—Prudden, Loeffler, i. J-1; Prudden, Yeux and Yersin, Loeffler, Rachford, Robinson, i. J-2; Conner, Bruce, Low, Anderson, Spear, Nelson, Spronk, Klebs, anon., Veil, i. J-3.

PROPHYLAXIS—Blache, Bard, i. J-3; Prudden, i. J-4.

SEQUELÆ AND COMPLICATIONS—Brower, Morton Prince, Debove, Bókai, Starr, Baginski, Cassel, Walker, Kühn, Fabre, i. J-4.

TREATMENT—Jacobi, i. J-4; Jacobi, Brower, i. J-5; Foster, Ingals, Waxham, Casselberry, D'Espine, Loeffler, André, Shorts, Sullivan and Brinkman, Wigg and Hamilton, Porter, Guelpa, Osborne, i. J-6, Caldwell, Scott, D'Ortenzio, Renvers; Heubner, Taube, Jacobi, Rondot, Leblond, Gaucher, Goldvüg, i. J-7; Langlois, Gonthier, Zaunellis, Burghardt, Coleman, Jules Simon, Roux and Yersin, Hennig, i. J-8; Créasantignes, Seibert, Lindley, Stevens, Turner, i. J-9.

DIPHTHERIA, PERTUSSIS, AND PAROTITIS—J. Lewis Smith, Frederick M. Warner, i. J-1.

DIPTERA, LARVÆ (PSEUDO-PARASITES)—Hugo Summa, i. F-23; Hope, Koch, Tiedemann, Grube, Loew, Wohlfahrt, Froriep, Voigt, Troschel, Thienemann, F. L. James, Salzmann, Ule-Wagner, Meschede, Gerhard, Tossato, Bateman, Jenyns, Wacker, Summa, i. F-24; Pruner-Bey, Kuechenmeister, Finlayson, i. F-25; Summa, White, Westwood, J. F. Hope, Pickels, Samuel Crumpe, Langstein, Finlayson, James A. Calder, Norris F. Davey, Charles Bevill, Raphael Blanchard, Daniel Fischer, Alex. J Fleming, anon., i. F-26.

GENERAL INDEX.

Drainage-tubes and drainage......iii. Q- 13

Dropsical effusions, electricity in..v. C- 11

Duodenal juice of man................v. B- 57

Duodenum, diseases......................i. D- 5
  carcinoma................................i. D- 4
  ulcer.......................................i. D- 4

Dysentery, adult, treatment.........i. D- 2
  infantile, treatment...................i. E- 25

Dysmenorrhœa...........................ii. F- 47

THERAPEUSIS.

Diphtheria (*continued*).
sol. or liq. calcis. Spray or atomiza. of sol. of tinct. eucalypt. (1 to 16); int. tinct. ferri, one drop ev. h. or 2 hrs.; also, when gland. swell. is painful and extens., use ℞ Ext. bellad., 2 p.; potass. iod., 1 p.; adepis, 30 p.—M. ft. ungt. Sig.: Rub in well, i. J-8. Gargle of liq. calcis ev. hr., fol. by ʒiiss to vss (10 to 20 c.cm.) of same int.; ice around neck. *If larynx affect.*, use spray of liq. calcis; Crésantigne's brush (absorb. cott. on probe cov. with flannel) to rem. false membr.; sod. chloride in layer over tongue and tonsils; rub in salt with back of spoon-handle 2 t. d.; iodof. insuffl. ev. 3 or 4 hrs., i. J-9. Resorcin in glyc. (1 to 9) loc. to false membr., v. A-116.
Pharyngeal.
Papayotin, 5% sol. in. aq. for dissolv. false membr., by inject. spray, or brush; in 25% and 50% sol. in aq. and glycer. in nose, throat, trachea (through tracheot. tube); never apply in powd., i. J-4. Mercury, quin., whisky; intuba.; if intuba. fails, perf. tracheot., i. J-6. Spray of hydrarg. biniod., v. A-59.
Sequelæ and Complications.
Anorexia.
Artif. feed. with stom.-tube, early, i. J-7.
Paralysis.
Mildest electr. curr., i. J-6; strychnia, gr. 1-20 to 1-12 (0.03 to 0.05 grm.). hypod., at seat of paral., incr. gr. 1-200 (0.001 grm.) for 10 to 12 d.; stop for 6 to 8 d., v. A-96.
Scarlatinal Diphtheria.
Taube's meth.: Inject into tonsils of 3% to 5% sol. ac. carbol., ♏vij (0.5 grm.), 2 t.d., with hypod. syr. with long needle; contin. until swell. of glands disapp. and morn. temp. bec. norm., i. J-7.

Dislocation.
Carpus.
Back and to rad. side: Hyperextension of wrist, traction while flexing, pressure on carpus, iii. H-10.
Phalanges.
Proximal: Section (partial or entire) of glenoid ligmt. *Lat. disloc. of ungual phal. of thumb:* Lat. flex. to 90° and traction in axis of thumb, iii. H-11.
Shoulder.
Backward: Abduct arm, rotate inwd., press. on head poster., iii. H-8.
Vertebræ.
Fourth cervical, lateral: Incision to laminæ and manipulation, iii. H-6.

Dropsical Effusions.
Squills, v. A-135; ulexine, v. A-137; virga latifol. in powd., with yolk of an egg, or in very weak infus., v. A-138.
following Scarlatina.
Local electrization, v. C-11.

Dysentery.
Ipecac, gr. xx to lx (1.3 to 4.0 grm.) ev. 12 hrs; alum-water enemata: alum, ℥ss (16 grm.) to aq. ℥viij (250. c.cm); creolin, ½% sol. inject. 2 or 3 t. daily, i. D-2; bism. salicyl., v. A-23.

AUTHORS QUOTED.

Disease Distribution—
Local Influences—W. E. Smith, Kelly and Barnes, Maier, v. E-32; Ferron, Miguel, Tracy, Clément, R. Stern, v. E-33.

in British Isles—Collect. Investig. Comm. Brit. Med. Assn., v. E-33.

Disinfectants—Dujardin-Beaumetz, Dubief and Brühl, Cyrus, Edson, Reynolds, iv. M-8.

Dislocations—
Carpus—Sherburn, iii. H-11; Carroll, Moriarty, iii. H-11.

Hip—Rutherford, Stimson, iii. H-12; Liber, Lange, Rivington, Stimson, Pye-Smith, Kammerer, Farrant, Lyne, Dixon, Kennedy, Douglas, Bloch, iii. H-13.

Humerus—Manclaire, iii. H-8.

Knee, Congenital—Anon., Joachimsthal, iii. H-14.

Metacarpal Bone—Taylor, iii. H-11.

Old, Treatment—Knapp, iii. H-8; Mc Laren, Heron, Watson, Jonas, T. G. Morton, iii. H-9.

Phalanges—Stimson, Battle, Pratt, Gazin, iii. H-11.

Radius—Van Arsdale, Clay, iii. H-11.

Ribs—Bradley, Stoner, iii. H-6.

Shoulder—Moore, iii. H-6; Cates, Andain, Dolard, iii. H-7; Baum, Beach, Manclaire, iii. H-8.

Ulna (Forward)—J. S. Wight, iii. H-10.

Vertebræ (Cervical)—Walton, iii. H-5; Laplace, iii. H-6.

Drainage-tubes and Drainage—Weeks, Beyer, Cramer, Thiem, Schmid, McGill, Boeckel, Chaput, Malécot, iii. Q-13.

Duodenal Juice of Man—Tschlenoff, Boas, v. B-57; Boas and Tschlenoff, Reichmann, v. B-58.

Duodenum, Diseases—
Carcinoma—Whittier, i. D-5.

Ulcer—Mackenzie, Bradbury. Woodward, Sabrasès, i. D-4.

GENERAL INDEX.

Dyspareunia ....ii. H- 2

Dyspepsia, acid ....i. C- 10
  alkaline ....i. C- 11
  nervous ....i. C-12, 13
  of newborn ....ii. L- 13
  painful ....i. C- 9

Dyspnœa ....i. A- 15

Ear, external ....iv. C- 1
  external auditory canal, hyperostosis ....iv. C- 1
  foreign bodies ....iv. C- 5
  furuncles ....iv. C- 4
  neuroses ....iv. C- 3
  otitis externa ....iv. C- 3
Ear, internal ....iv. C- 27
  acoustic nerve, electrolysis of..iv. C- 28
  deafness following mumps, total iv. C- 27
  inflammation of labyrinth following scarlatina ....iv. C- 27

Ear, middle ....iv. C- 10
  attic, reduplications of membrane ....iv. C- 26
  myringitis, pure ....iv. C- 14
  non-purulent disease ....iv. C- 24
    Delstanche's air-pump ....iv. C- 25
    Lucae's double-bag ....iv. C- 25
    Lucae's pressure-sound ....iv. C- 26
  otitis media, acute — functional nervous disturbances...iv. C- 14
      micro-organisms ....iv. C- 15
      treatment ....iv. C- 12
    chronic—otorrhœa ....iv. C- 15
      deafness from ....iv. C-15, 17
      electricity in ....iv. C- 21
      excision of malleus ....iv. C- 18
      excision of membrane and malleus ....iv. C- 17
      Loewe's new dressing ....iv. C- 16

THERAPEUSIS.

DYSPAREUNIA.
Remove cause; if from urethral caruncle, excision, ii. H-2.

DYSPEPSIA.
ACID.
Troch. bism. (B.P.). ℞ Crêt. præp., gr. iiiss (0.22 grm.); sod. bicarb., gr. iiss; sod. chloridi, gr. j—M. ft. troch. To relieve pain, sod. bicarb., gr. v to x (0.32 to 0.64 grm.), in milk. ℥j (30 c. cm.). i. C-10; alkaline or alkaline-saline waters, i. C-12.

ALKALINE.
Ac. hydrochlor. [dil. ♏viiss to xxx (0.5 to 2.0 grm.)]; pepsin and peptones, i. C-11.

NERVOUS.
Generous mixed diet; vegetable diet, i. C-11; avoid Glauber's salts; use alk. waters containing chlorides and iron; hot baths, massage, electr., change of climate, i. C-12; treat nerves; Scotch douche, i. C-14; embelia ribes, v. A-51.

OF NEWBORN.
Acid. hydrochlor., when casein is not digested, ii. L-14; lavage, ii. L-13.

PAINFUL.
Elastic compress. of abdomen—rubber band., 8 to 10 in. (20 to 25 centim.) wide; dust skin with starch bef. applying; leave on for 1 hr. after meals; hot pad and binder of hydropaths; Scotch douche, i. C-9. Lavage with bismuth; electric., large electrodes, ½ hr. bef. meals; also dry farad. brush; hypnotism, i. C-10; phosphated pepsin, v. A-104.

DYSPNŒA.
FOLLOWING PERTUSSIS, MEASLES, AND SCARLATINA.
Galvanism, v. C-11.

OF DYSPEPSIA.
Treat dysp.; if full stom., evacuate, i. A-51.

OF PNEUMONIA (CHRONIC).
Eserine and syr. pruni virg.; avoid opium if possible, i. A-51.

EAR, EXTERNAL, DISEASES.
EXTERNAL AUDITORY CANAL, HYPEROSTOSIS.
Removal by gouge, iv. C-1; perfora. by files, drills, etc., with dental engine; galvano-cautery; chain-saw; Roberts's electro-osteotome, hollow trephine; remove integ., burr down the tumor flush with surf.; dress with hydro-naphthol gauze; remove in 4 d.; hot-water treat. later, iv. C-2.

FOREIGN BODIES.
PISTOL-BALL.
Trouvé electric stylet, iv. C-5.

CAROBE-SEED.
Aspira. with aural syr., iv. C-5.

IN GENERAL.
Use oil instead of water, iv. C-5.

FURUNCLE.
℞ Ac. boric. (in fine powd.), gr. cccviij (20 grm.); alcohol absol., ℥iii 1-5 (100 grm.)—M. S.: Instill into ear. Incise F. when necess.; to relieve pain, use alc. sol. cocain. (5% to 10%). Use boracic wash bef. rem. impact. cerum.; ℞ Ac. bor., gr. xlv (3 grm.); glyc., aq. destil., āā ℥iss (50 grm.)—M. S.: Bef. fur.

AUTHORS QUOTED.

DYSENTERY—
ADULT, TREATMENT — H. L. Jenckes, Ewart, Hepburn, Ossovsky, i. D-2.
INFANTILE, TREATMENT—Jacobi, i. E-25.

DYSPAREUNIA—Mundé, ii. H-2.

DYSPEPSIA—
ACID—Roberts, i. C-10.
ALKALINE—Munk, i. C-10; Bourget, Ewald, i. C-11.
NERVOUS—Ewald, i. C-11; Decker, i. C-13.
PAINFUL—Wettendorfer, Kevin, Fournier, i. C-9; Ziemssen, Pulido, Ortega, i. C-10; Decker, i. C-13.

DYSPNŒA—Prausnitz, Katzenbach, Winner, Waugh, i. A-51.

EAR, EXTERNAL—
EXTERNAL AUDITORY CANAL, HYPEROSTOSIS—Thomas R. Pooley, iv. C-1; Milton, J. Roberts, Matthewson Jacquemart, iv. C-2.
FOREIGN BODIES — Dudon, Trouvé, Cozzolino, Trifiletti, Corradi, iv. C-5.
FURUNCLES — Schimmelbusch, Lowenberg, Lacoarret, iv. C-4; R. Cholewa, iv. C-5.
NEUROSES—John W. Mackenzie, iv. C-3.
OTITIS EXTERNA — Miot and Baratoux, iv. C-3; L. Guranowski, Gruber, iv. C-4.

EAR, INTERNAL—
ACOUSTIC NERVE, ELECTROLYSIS OF—Gradenigo, iv. C-28.
DEAFNESS FOLLOWING MUMPS, TOTAL — Barr, iv. C-21; Roosa, Ollivier, Buck, iv. C-28.
INFLAMMATIONS OF LABYRINTH FOLLOWING SCARLATINA—L. Katz, iv. C-27.

GENERAL INDEX.

Ear, middle, otitis media, chronic (*continued*).
  loosening of stapes..........iv. C- 22
  round window, perforation..........iv. C- 26
  Schrapnell's membrane, perforation..........iv. C- 20
  treatment, general..........iv. C- 23
  tympanic granulations....iv. C- 20
 polypi, cerebral symptoms....iv. C- 21

Ectasia ventriculi paradoxa..........i. C- 22

Eczema, chronic..........iv. A- 50
 seborrhœicum..........iv. A- 50

Elastic compression of abdomen...i. C- 9

Elastic fibres, histology of..........v. H- 4

Electrical resistances..........v. C- 28

THERAPEUSIS.

Ear, External, Diseases (*continued*).
syring. for remov. of cerum., iv. C-4. Sol. menthol (20%) on cotton, in canal; renew ev. d., iv. C-5.
Otitis Externa.
Ac. diff., secret. excess. ℞ Sod. bicarb., 5 p.; aq. dest., 100 p.—M. S.: Use with syr. ℞ Hg. bichlor., 1 p.; aq. dest., 200 p.—M. S.: Use with syr., iv. C-3. Boric acid syring.; tampons of cott. soak. in carbol-glyc. (1 to 10): later, pulv. ac. bor. insuffl. once daily, iv. C-4.

Ear, Internal, Diseases.
Deafness following Mumps, Total.
Pilocarpine (?), iv. C-27.
Inflammation of Labyrinth following Scarlatina.
In simple infl., general rules; in chron. cases, pilocarpine and potass. iod. (?), iv. C-27.

Ear, Middle, Diseases.
Myringitis, Pure.
Paracentesis of memb. tymp., iv. C-14.
Non-purulent Disease.
Treat dis. of nose and throat; instill. of glyc. of ac. carbol. (B. P.); leeches over mastoid; hot foment. *If effus.*, perf. paracent. *In chr. cat.*, when Eustach. tubes are stenos. by thick. m. m., force vapor of menthol (20% alc. sol.) into Eust. tubes, with Lucae's doub. bag. *If thick. more perm.*, pass cell. bougies through Eust. cath. and to isthmus of tube, iv. C-25. Siegle's pneumat. spec. to loose. fibr. bands; and ankyl. ossicles, massaged by Siegle's spec. and Delstanche's air-pump; Lucae's pressure-sound; Ward Cousin's mod. Politzer-bag. *In greatly-retracted drums*, incise prom. post. fold. If *drum-head much thick.*, remove with malleus. *In sclerosis or plastic cat.*, use vap. of menthol and eucalyptus, iv. C-26.
Otitis Media.
Acute.
Leeches over mastoid; cool dress. to aff. ear: avoid ice in young child. *If effusion in tymp.*, perf. immed. paracent.; warm-water syr.; Politzer bag, iv. C-15; later, 4% ac. bor. sol. in ext. can. *If disch. contin. after 14 d.*, 2 to 5 drops of sat. sol. plumbi acet. to a tablesp. of water, iv. C-16.
Chronic.
Antisep. sol. carbolic ac. (1% to 1½%) and sublimate [1 to 4000] when disch. offensive; creolin [1 to 1000], pulv. ac. bor.; "Loewe dressing:" cleanse ext. audit. can.; Politzer infla.; tampon audit. can. with subl. cott. from drum-head out; large pledg. in concha; bandage; renew daily, as at first, iv. C-16. Excis. of memb. tymp. and malleus, iv. C-17; excis. of malleus, iv. C-18; subl.; iod.; ac. salicyl.; ac. carbol.; ac. borac.; pot. permang.; chlorof.; alc.; iod.; brom.; oil mint; ac. sulphurous; alc.; granula. remov. by forceps or Macnaughton Jones's crocodile lever-ring forceps; arrest hæm. by hot-water syr., and press. made with cott. on holder; chloro-acetic ac. to raw

AUTHORS QUOTED.

Ear, Middle—
 Attic Reduplications of Membrane—Blake and Bryant, iv. C-26.
 Myringitis, Pure—Eitelberg, iv. C-14.
 Non-purulent Disease—Adolf Bronner, Hewson, Lucae, iv. C-25; Siegle, Delstanche, Lucae, Ward Cousin, Schwartze, iv. C-26.
 Otitis Media—
  Acute—
   Functional Nervous Disturbances—Godskeeen, Holger Mygind, iv. C-14.
   Micro-organisms — Baratoux, iv. C-10; Zaufal, Friedländer, Weichselbaum, Fränkel, Moos, Gradenigo, Bordoni-Uffreduzzi, A. Gouguenheim, Netter, Borbone. Trifiletti, iv. C-11; S. Moos, Manfredi, iv. C-12.
   Treatment — Eitelberg, iv. C-15; Loewe, iv. C-16.
  Chronic—Otorrhœa—
   Deafness from—Eitelberg, iv. C-15; Charles H. Burnett, iv. C-17.
   Electricity in—Eitelberg, Gompers, Gruber, Siemens, Holske, H. Reiner, iv. C-21.
   Excision of Malleus—Reinhard and Ludewig, iv. C-18.
   Excision of Membrane and Malleus—C. H. Burnett, iv. C-17.
   Loewe's New Dressing—Loewe, iv. C-16.
   Loosening of Stapes—A. Gouguenheim, Moure, Miot, iv. C-22.
   Round Window, Perforation — Trifiletti, Cozzolino, iv. C-26.
   Schrapnell's Membrane, Perforation—Politzer, iv. C-20.
   Treatment, General — Lichtwitz, Eitelberg, Bürkner, Robt. L. Randolph, Schwartze, iv. C-23; Laplace, Behring, F. Kretchmann, Brandau, iv. C-24.
   Tympanic Granulations — Politzer, iv. A-20.
 Polypi, Cerebral Symptoms—Ralph W. Seiss, iv. C-21.

Eczema—
 Chronic—Eloy, iv. A-50.
 Seborrhœicum—Bronson, iv. A-50.

Elastic Fibres, Histology of — Galen, Blashks, Straub, Müller, Brücke and Hannover, His, Gerlach, v. H-4; Ssudakewitsch, v. H-5.

Electrical Resistances—Danion, G. Gaertner, Virgilis, Machado, v. C-28.

Electricity—
 in Basedow's Disease — Danion, v. C-14; Rockwell, Danion, Foedern, v. C-15.
 in Cancer—J. I. Parsons, v. C-15.
 in Children's Diseases — Shoemaker, v. C-11.
 in Convulsive Attacks—Shoemaker, v. C-9.
 in Cutaneous and Venereal Diseases—J. V. Shoemaker, v. C-5.
 in Erectile Tumors—Th. Gessler, v. C-11; John Duncan, Lacaille, v. C-12; Seigneur, Redard, v. C-13.
 in Gastric and Intestinal Disturbances—W. R. D. Blackwood, v. C-10.

GENERAL INDEX.

Electricity—in Basedow's disease.v. C- 14
in cancer.......v. C- 15
in children's diseases.......v. C- 11
in convulsive attacks.......v. C- 9
in cutaneous and venereal diseases.......v. C- 5
in erectile tumors.......v. C- 11
in gastric and intestinal disturbances.......v. C- 10
in gynæcology.......v. C- 16
in lead poisoning.......v. C- 22
in lymphatic engorgement.......v. C- 4
in neuralgias.......v. C-5, 8
in nocturnal incontinence.......v. C- 21
in paralyses.......v. C-3, 9
in rectal diseases.......v. C- 21
in thoracic diseases.......v. C- 10
in urethral diseases.......v. C- 22
in vasomotor disturbances.......v. C- 11
sedative effects.......v. C- 2

Electro-cataphoresis.......v. C- 1

Electro-therapeutics.......v. C- 1
new instruments.......v. C- 23
accumulator, portable.......v. C- 23
bath, two-celled.......v. C- 24
Edison dynamo apparatus...v. C- 24
electric lamp, new use.......v C- 27
galvano-cautery, a cheap.....v. C- 25
Harris-Wimhurst static machine.......v. C- 26
illuminating apparatus, portable.......v. C- 23
milliampèremeters.......v. C- 27
needle-holder, electrolytic...v. C- 23
nerve-current measurer......v. C- 25
rapid-circuit closer for thermopiles.......v. C- 24
rheophore-handle, automatic.v. C- 23
umbrella-electrode.......v. C- 27

THERAPEUSIS.

Ear, Middle, Diseases (*continued*).
surf.; or sol. ac. chrom. (1 to 8); Politzer bag, iv. C-19. *If Schrapnell's membr. perf. and pur. disch. from attic*, use resorcin sol. (3%) or subl. (1 to 2000) inject. through Hartmann's canula or elastic tube; ac. borac.; iodol. (5%); iodof.; sol. argent nit. 1-10 sol. *If adhes. bands*, cut with Politzer's stylet. *If malleus necrosed*, remove. Curette away all necros. bone, iv. C-20. *Granula. within tympanum*: Remove by sharp curette; caut. with argent. nitr. (fused cryst.) only when small; ferri perchlor. cryst. or sat. sol., iv. C-20: use cryst. when growths excess. and dense; ac. chromic., crys. or sol; cocaine fol. by electro-caut. to gran., 3 or 4 t. at sitting, when snare or curette not avail., electric., 10-cell Siemens-Holske batt.; 2 meth., —1, cath. on mastoid proc., other into growth; 2, introd. fastened togeth. into growth, iv. C-21. Loosening the stapes, avoid in dry cat., iv. C-22. Creolin sol. (1 to 1000); 10 drops to 1 pint (1 litre) of warm wat. instil. into ear and leave 10 min. *Avoid* pulv. borac. ac. when disch. is thick and abund., iv. C-23; subl. sol. (1–3000 to 1-10,000). ℞ Hydrarg. bichlor., gr. ss (0.032 grm.); ac. tartar., gr. xx (1.29 grm); aq. ad ℥v (147.8 grm.)—M. S.: After syr. ear with warm wat., fill ext. aud. can. with sol.; retain 10 to 15 min.; then allow escape; close meat. with moist subl. cot.; repeat 2 or 3 t.d. *Liq. antihid.* to feet, after warm bath: then warm water, and dry them; feet in horiz. posit. (½ to 1 hr.); rep. ev. 3 or 4 d., iv. C-24. Biniodide of merc. spray (1 to 3000), v. A-59; saccharin sol., v. A-120.

Polypi.
Remove with Blake's snare; base caut. with ac. chrom. fus., iv. C-22.

Sclerosis.
Electrol. of acoustic nerve, const. curr., iv. C-22.

Ectopic Gestation.

Abdominal Gestation (Primary).
Laparotomy, ii. G-44.

in Rudimentary Uterine Cornua.
Laparotomy, ii. G-27.

Interstitial.
Remove fœtus, through ut. cav., ii. G-41.

Tubal.
1. *Electric.*, if diag. is made during first 3 mos., and if sympt. only the early or premon. sympt. of rupture. 2. *Laparotomy*, if diag. not made till 4th mo., with severe sympt.; do laparot., remove sac and contents carefully. 3. If diag. is made at any stage, and sympt. alarming, due to rupt. and loss of blood, immed. laparot. 4. Delay laparot. till 7th mo.: if diag. made after 5th mo. with dimin. sympt. and pat. can be watched, be ready for laparot. any time. 5. Operate in best manner to remove dead fœtus, when preg. is beyond 9th mo.: the amt.

AUTHORS QUOTED.

Electricity (*continued*).
in Gynæcology—J. Wesley Bovee, v. C-16; W. J. Sinclair, Englemann, Apostoli, Spencer Wells, Playfair, Thomas Keith, Orthmann, Bröse, Noeggerath, v. C-17; Engelmann, v. C-18; Noeggerath, Apostoli, Bröse, A. Warnier, v. C-20; Apostoli, v. C-21.
in Lead Poisoning—Semmola, Serafini, v. C-22; Semmola, Viscoli, v. C-23.
in Lymphatic Engorgement—Mordhorst, v. C-4.
in Neuralgias—Shoemaker, v. C-8.
in Nocturnal Incontinence—R. Jamin, v. C-21.
in Paralyses—Dubois, v. C-3; Erb, Sahli, Petrina, v. C-4; Shoemaker, v. C-9; C. S. Bull, v. C-10.
in Rectal Diseases—W. S. Shotwell, v. C-21.
in Thoracic Diseases—Shoemaker, v. C-10.
in Urethral Diseases—Danion, v. C-22.
in Vasomotor Disturbances—Shoemaker, v. C-11.
Sedative Effects—George H. Washburn, Apostoli, v. C-2.

Electro-cataphoresis — Thomas Buzzard, F. Petersen, Adamkiewicz, Landon Carter Gray, M. Allen Starr, v. C-1; Sachs, Adamkiewicz, v. C-2.

Electro-therapeutics — Ambrose L. Ranney, George G. Van Schaick, v. C-1.

New Instruments—
Accumulator, Portable—Kuhn, v. C-23.
Bath, Two-celled—G. Gaertner, v. C-24.
Edison Dynamo Apparatus — O. B. Douglass, Parsell, W. B. Vanderpoel, v. C-24.
Electric Lamp, New Use — Wiesmann, Chardin, v. C-27.
Galvano-cautery, a Cheap — Armaignac, Grenet, v. C-25.
Harris-Wimhurst Static Machine—H. Montague, Harris, Wimhurst, v. C-26.
Illuminating Apparatus, Portable — Vohwinkel, v. C-23.
Milliampèremeters — Plym. S. Hayes, v. C-27.
Needle-holder, Electrolytic — F. J. Leviseur, v. C-23.
Nerve-current Measurer — D'Arsonval, v. C-25.
Rapid-circuit Closer for Thermopiles —G. Mayerhausen, v. C-24.
Rheophore-handle, Automatic — F. Eklund, v. C-23.
Umbrella-electrode—H. Montague, v. C-27.

Electrolysis in Urethral Stricture—R. Newman, iii. E-14; Brewer and Otis, J. A. Fort, Consell and Westheimer, iii. E-15; Berkely Hill, Fort, Lavaux, Jardin, F. F. Sanders, Newman, Keyes, iii. E-16.

Electrotherapy, Suggestion in—R. Friedländer, Möbius, v. C-2.

GENERAL INDEX.

Electrolysis in urethral stricture.iii. E- 14

Electrotherapy, suggestion in.......v. C- 2

Elephantiasis..............................iv. A- 2
  nævoid..................................iv. A- 19

Elixir of life, Brown-Séquard's...v. A- 55

Embelia ribes, therapeutic uses....v. A- 1

Embryology, anomalies, and monstrosities..........................v. G- 1
  embryo, development of human v. G- 4
  fœtal membranes, in rabbits and man..................................v. G- 2
    and placental attachments in man..................................v. G- 4
    of the chick.........................v. G- 5
  ova, maturation and fecundation v. G- 2
    segmentation and double monsters..................................v. G- 5
  provertebræ in ringed snakes.v. G- 5
  spermatogenesis......................v. G- 1
  uterus, changes in pregnant...v. G- 3

THERAPEUSIS.

Ectopic Gestation (*continued*). and charact. of genl. and loc. sympt. occas. by dead fœtus determine time for abd. section and removal of fœtus, ii. G-34.
  Electrical.
  Farad. curr., pos. pole ext., neg. pole through vag., for 5 min., then through rectum for 5 minutes, 2 t.d. If rupt. or suppura., do laparot.; only of use in 1st 3 mos.
  Medical.
  Winckel's morphia treat.: Inject into tumor through abd. morphia. gr. ss (0.03 grm.). ev. 14 d.; pat. in bed, ice on abdomen, ii. G-38.
  Surgical.
  If rupture, early op.; *if collapse*, revive pat. bef. op.; press. on abd. aorta. Intravenous saline inject.: ℞ Sod. chlor., ʒiss (6 grm.); liq. potass., ♏j (0.07 grm.); pot. carb. pur., gr. xlv (3 grm.); water, boiled or distil., qt. j (1000 grm.)—M. Sig.: Heat to 104° F. (40° C.), pour through funnel at height of 40 inches (1 metre). Nitroglycerin sol. (1 %), 10 drops, fol. by atrop. when effects of nitro-glycerin are apparent; when betw. prim. rupt. and viable age, expectancy, laparotomy (?); at term, do primary laparotomy at onset of labor, ii. G-36. Incis. 2 or 3 in. (5.0 to 7.5 cm.) to side of med. line (extra-peritoneal op.). "*Tait's method*" with placenta: Cut cord close to placenta; empty fœtal port. of placenta of blood by careful press.; cleanse sac with water and siphon-trocar; draw stitches tight, with trocar in wound; press water out of sac through trocar, remove troch., avoid entrance of air, and close wound. *If sepsis*, re-open sac; secondary removal of placenta after thrombosis of mat. sinuses; if perit. opened, stitch edges of cyst to edges of abd. wnd.; if fœt. is dead, remove early, ii. G-37. If interstitial preg. can be diag. bef. rupt., dilate cervix, divide septum in wall of ut., and evac. pregn. cornu, ii. G-38.

Eczema
  Acute.
  Bismuth oxyiodide (red), v. A-23; massage, centrip. stroking to cause infiltra. left by ac. attack to be absorbed, v. A-90. *From carbolic acid*, lanolin inunct.; add cocaine if much itching, v. A-28.
  Chronic.
  ℞ Menthol, gr. x to xx (0.65 to 1.30 grm.); bals. Peruv., gr. xxx (1.95 grm.); lanolin, q. s. ad ft. ℥j (31 grm.)—M., iv. A-50.
  Seborrhœicum.
  Sol. (10 %) of anthrarobin in alcoh. or collod., iv. A-50; sulphur and vaselin (1 to 10), iv. A-65.

Elephantiasis.
  Absol. rest; daily hot bath; bland food (milk) in mod. amt.; massage and const. curr.; quin., arsen., and strych.; aperients, iv. A-10.

Emphysema.
  Inhalation of chloroform, v. A-36; oxygen inhala., v. A-102.

AUTHORS QUOTED.

Elephantiasis—Bennet, iv. A-9; Felkin, iv. A-10; Berry, iv. A-11.
  Nævoid—Merrill Ricketts, iv. A-12.

Elixir of Life, Brown-Séquard's—H. P. Loomis, T. B. Greenley, J. M. Fort, A. Cariveaud, H. C. Brainerd, E. H. Anderson, J. I. Taylor, M. G. Variot, Winslow Anderson, John L. Rivera, Wm. A. Hammond, Northwestern Lancet, La Semaine Médicale, Weekly Medical Review, Medical Record, Medical Age, British Medical Journal, Times and Register, Weekly Medical Review, New York Medical Journal, v. A-51.

Embelia Ribes, Therapeutic Uses—C. J. H. Warden, S. F. Landry, v. A-51.

Embryology, Anomalies, and Monstrosities—W. Xavier Sudduth, Ernest B. Sangree, v. G-1.
  Embryo, Development of Human—C. Phisalix, His, v. G-4.
  Fœtal Membranes, in Rabbits and Man—Charles Sedgwick, Minot, v. G-2; Creighton, v. G-3.
    and Placental Attachments in Man—Minot, Manille Ide, Annual, 1888, v. G-4.
    of the Chick—Thos. W. Shore, v. G-5.
  Ova, Maturation and Fecundation—N. Kultschhitzky, Fleming, G. Platner, v. G-2.
    Segmentation and Double Monsters—G. Born, Droggul, v. G-5; Annual, 1889, v. G-6.
  Provertebræ in Ringed Snakes—V. von Ebner, Remak, His, v. G-5.
  Spermatogenesis—D. Biondi, Sertoli, E. Verson, E. M. Nelson, v. G-1.
  Uterus, Changes in Pregnant—Minot, Masquelin and Swaen, Ercolani, Creighton, Van Beneden and Julin, v. G-3; Minot, Masquelin and Swaen, v. G-4.

Emphysema—
  Diagnosis—Heitler, Earle, i. A-68; Wigmore, i. A-69.
  Etiology—Huchard, Wigmore, i. A-66; Carr, Dieulafoy, Earle, i. A-67.
  Pathology—Northrup, Heitler, i. A-68.

Empyema—
  Treatment, Surgical—S. B. Kirkpatrick, iii. B-11; William Williams, iii. B-21; Potain and Dieulafoy, Debove, Galanti, E. Van Goidtsmann, Nönchen, iii. B-22; M. B. Hutchins, iii. B-23; Desplats, E. Küster, iii. B-28; F. Eklund, Runeberg, M. Stubbotic, Liston, iii. B-29; John R. Lunn, Sayre, R. Davy, iii. B-30.
    After-treatment—Herman Mynter, Runeberg, iii. B-30; Basil, Holsti, Fräntzel, R. J. Godlee, iii. B-31; Godlee, iii. B-35; A. Cabot, A. Gallet, Estländer, iii. B-36; Godlee, iii. B-38; Estländer, iii. B-39; Sreisguth, R. Rheinstaedter, iii. B-40; Hofmokl, iii. B-41.

GENERAL INDEX.

Embryology, anomalies, and monstrosities ....v. G- 1

Emphysema ....i. A- 66

diagnosis ....i. A- 68

etiology ....i. A- 66

pathology ....i. A- 68

Empyema (see Pleurisy) ....i. A- 62

treatment, surgical ......iii. B-11, 21, 28

after-treatment ....iii. B- 30

Encephalitis (see Brain, diseases) .ii. A- 51

Endocarditis ....i. B- 11

infectious ....i. B- 11

malignant ....i. B- 14

primary ulcerative ....i. B- 15

Enemata ....v. B- 29

Enterectomy ....iii. C-31, 32

Enteric (typhoid) fever ....i. H- 10

abortive form ....i. H- 37

adventitious rashes of ....iv. A- 44

association with other infections ....i. H- 22

complications and sequelæ ......i. H- 30

diagnosis ....i. H- 37

epidemics of ....iv. M- 6

etiology ....i. H- 10

geographical distribution ....i. H- 41

in infancy and childhood ....i. H- 43

paralyses, post-typhoid ....i. H- 35

pathology ....i. H- 25

sudden deaths ....i. H- 34

treatment, during disease in adults ....i. H- 45

in convalescence ....i. H- 52

in infants and children ....i. H- 44

THERAPEUSIS.

Emphysema (*continued*).

General Subcutaneous. Bandage from feet to chin; stimula. and support. treat.; aspira. of chest, i. A-69.

Empyema. Aspiration in 8th intercost. sp., iii. B-11; in 9th and 10th intercost. sp., quin.; incis. in 8th int. sp., aspira., irriga. with bichlor. sol. (1 to 4000), drainage, subl. gauze dress.; daily irriga. for few days, then less oft., iii. B-12. Incis. and resect. of rib (complete or part.), free drain.; Williams's valv. drain.-tube; Debove's aspirator, iii. B-22; Nönchen's thoracotome, with canula, iii. B-23. *Deplat's rules:* (1) If pus suspect., make explor. punct.; (2) if pus found, evac. immed.; (3) repeat to prevent new collect.; (4) if punct. insuff., apply perman. drain.-tube; (5) if septic cyst, with gangren. odor, open extens. at once, and use antisept. washes. E. Küster's op., iii. B-28. Runeberg's op.; Subbotic's thoraco-plastic op., iii. B-29; resect. of rib (part.), iii. B-30. When thoracic wall stiff and lung cannot expand, don't operate, iii. B-31; antisept. pleurot.; Estländer's op.; Gallet's op., iii. B-36; Gallet's curette, iii. B-39; Sreisguth's cystotome; Rheinstaedter's curette, iii. B-40; Hofmokl's meth., Hofmokl's trochar.

After-treat. Runeberg's meth.: Drain. with and without irriga. of sols. ac. boric., creasot., sublimate (1 to 8000, or to 16,000, if no danger from poss. diarrh.), iii. B-31; sol. ac. carbol. (2 to 100), sol. ac. salicyl. (1 to 100), sol. ac. boric (2 to 100), subl. sol. (2 to 10,000), emuls. of iodof. and glyc., insuffl. of iodof., iii. B-42.

Enteric Fever, in Adult.

During the Disease.

Bouchard's Treatment. At begin., for 4 d., calom., gr. ⅓ (0.02 grm.), in pil. 5 t.d.; cool baths, *if temp.* 104° F. (40° C.): first, 2° less, reduc. ev. 10 min. till temp. of bath falls to 86° F. (30° C.); 8 baths in 24 hrs. If temp. not reduced to norm., use quin. sulph., gr. xxx (2.0 grm.), at first, daily; grad. red. to q. s. to keep temp. norm. in morn., and 100.4° F. (38° C.) in evg. *For intest. antisep.:* ℞ Naphthol, bism. salicyl., āā gr. lxxv (5.0 grm.)—M. et ft. pulv. no. x. S.: One ev. hr. *If constipa.*, substitute magn. salicyl. for bism., i. H-46.

Buchman's Treatment. Flush colon; inject cold water, qts. i to iij (1 to 3 litres), i. H-47.

Burt's Treatment. Thorough disinfect.; protect. of water and milk supply. *For food*, predigest. milk; also water, i. H-46; alcoh., valuab. sometimes, may be withheld with benefit; antipy. not used, as card. depress: tepid-water sponges; no cold bath, i. H-47.

AUTHORS QUOTED.

Endocarditis—

Infectious—Jaccoud, i. B-11; Netter, Weichselbaum, i. B-12; Rosenbach, Sée, Wyssokowitsch, Gilbert, Netter, Fraenkel, Senger, Eberth, i. B-13· Gilbert and Lion, Girode, i. B-14.

Malignant—Ely, i. B-14.

Primary Ulcerative—Trumbull, i. B-15.

Enemata—Aristoff, Lazarevich, Basch, v. B-29.

Enterectomy—Rubio, Cotterill, iii. C-31; Madill, Briddon, iii. C-32; Briddon, iii. C-33.

Enteric (Typhoid) Fever—

Abortive Form—Jaccoud, i. H-37; Montefusco, J. W. Moore, Comegys, i. H-40; anon., Draper, Kinnicutt, Rendu, Finucane, i. H-41.

Adventitious Rashes of—Moore, iv. A-44.

Association with other Infections—Karlinsky, i. H-22; Holmes, i. H-23; Ceci, i. H-24.

Complications and Sequelæ—Landgraf, Lewy, Stolterfoth, i. H-30; Harrison, Snow, Buffet, Neely, i. H-31; Ebermaier, R. P. Long, Koehn, Leclerc, i. H-32; de Souza Martius, Branson, Minich, Hall, F. C. Shattuck, i. H-33; Hutchinson, i. H-35.

Diagnosis—Taylor, Ehrlich, Arthur Sansom, André, i. H-37.

Epidemics of — Michigan State Board of Health, iv. M-6.

Etiology—Vaughan, i. H-10: State Bd. of Health of Maine, anon., Gebhart, Cameron, Charles V. Chapin, Prudden, i. H-11; Ernst, Swarts, Anderson, Milroy, Cluzan, i. H-12; Passerat, Eberth, Chantemasse, Vaillard, Passerat, i. H-13; Shubert, Hope, von Pettenkoffer, i. H-14; von Pettenkoffer, i. H-16; Gordon, von Ziemssen, von Pettenkoffer, i. H-17; von Pettenkoffer, Augustus Caillé, Lucatello, i. H-18; Edson, Hamilton, Roberts, Harley, i. H-19; Rachford, i. H-21; Lavrand, Valentini, Fraenkel, Valentini, i. H-22.

Geographical Distribution — Riordan, Annual, 1888, i. H-41; F. H. Welch, i. H-42.

in Infancy and Childhood—Eberth, anon., Boobbyer, anon., Read, T. C. Eberth, i. H-43; Castelain, Gillet, i. H-44.

Paralyses, Post-typhoid—Kebler, i. H-35; Zenner, de Beck, Kebler, Küstenbaum, Nothnagel, A. H. Pratt, Heath, Branson, i. H-36.

Pathology—Janowsky, i. H-25; Schmidt, Wagner, Ziemssen, Gerhardt, Human, Steinthal, Murchison, Schmidt, Liebermeister, i. H-26; Jaccoud, Brand, i. H-27; F. C. Shattuck, Irvine, Handford, i. H-28; L. H. Cohin, Lafleur, i. H-29.

GENERAL INDEX.

Enteritis, congenital choleriform..ii. L- 14

Enuresis......................................i. G- 40

Ephedra vulgaris (mydriatic)......v. A- 51

Epidemiology..............................iv. M- 1

Epilepsy......................................ii. A- 55
- alcoholic...................................v. A- 9
  - electricity in...........................v. C- 9
- pathology..................................ii. A- 55
- symptomatology........................ii. A- 59
- treatment..................................ii. A- 68
  - trephining for.........................iii. A- 25

Epilepsy, procursive......................ii. A- 73

Epistaxis.......................................iv. D- 18

Epulis...iii. J- 9

Erectile tumors, electricity in......v. C- 11

Erethism...ii. H- 1

THERAPEUSIS.

ENTERIC FEVER, IN ADULT (*continued*).

GENERAL TREATMENT—
Acetanilid, v. A-3; caffeine in adynamic state, hypod., v. A-25; copper arsenite, for diarrhœa, gr. 1-100 (0.0007 grm.), in small, divided doses, v. A-21; cyanide of merc. to disinfect stools, v. A-60; gelsemium, alone or with veratrum vir., v. A-54; iodine and carbolic acid [℞ Ac. carbol., ♏xij (0.78 grm.); tinct. iodi (B. P.), ♏xvj (1.04 grm.); tinct. aurant., ʒiss (5.9 grm.); syr. simpl., ʒiij (11.7 grm.); aq., ℥viij (249 grm.)—M. Sig.: ℥j (31.0 grm.) ev. 4 hrs. for first 2 wks., then t. i. d.], i. H-49. Beta-naphthol, gr. iij to xv (0.20 to 1.0 grm), in capsule or suspens.: ℞ Beta-naphthol, gr. xx (1.30 grm.); tinct. aurant., fʒij (8.0 grm.); syr. limon., f℥ss (16.0 grm.); mucil. trag., f℥iij (93.0 grm.); aq., ad f℥vj (185.0 grm.)—M. Sig.: Dos., ℥j (31 grm.), ev. 2 hrs. dur. dis. until temp. norm. Acetanil. or phenac. given besides if temp. above 102° F. (38.88° C.), to ad. 60 grains (4.0 grm.) daily, i. H-48; in. child, 15 to 30 gr. (1.0 to 2.0 grm.), daily, i. H-49; v. A-95. Oxygen inhala., v. A-102; quinine hydrochlor. neut. hypod., v. A-115; saccharin, v. A-120; sulphonal, v. A-130; salol, gr. ij to x (0.13 to 0.65 grm.), ev. 3 to 4 hrs., i. H-49; thymol [gr. ss to v (0.03 to 0.33 grm.)], i. H-49, v. A-136; veratrum, as cardiac tonic, v. A-137.

HARLEY'S TREATMENT.
℞ Ammon. citr., gr. j (3.24 grm.); spts. ammon. ar., ♏xx (1.30 grm.); sod. bicarb., gr. xx (1.30 grm.); suc. limonis, ℥ss to j (15.5 to 31 grm.)—M. S.: Effervescent draught, ev. 3 or 4 h. Large linseed poult. to abd. and altern. to back and front of chest; mod. use of alcohol, i. H-45.

HYDROTHERAPY.
Antipyrin in limited and selected cases only; good nourishm. with sherry, op., and camph. in threat. asthenia. "Brand method"—*Anuschat's method*: 3 baths daily, 15 to 25 min. each, at 95° F. (35° C.) if body-temp. is 100.4° to 102.2° F. (38° to 39° C.): at 93° F. (33.88° C.) if body-temp. is 102.2° to 104° F. (39° to 40° C.), and at 90.5° F. (32.50° C.) only if body-temp. is above 104° F. (40° C.); when body-temp. falls bel. 99.5° F. (37.50° C.), bathe less freq.; medic., diet and stim. as usual, i. H-51. *Cold affusions*: In first days, ev. 2½ hrs., with 3 to 4 bucketsful of water; lift pat. from bed, put in squatting posit. in a tub; after each affus. dry rapidly, replace upon bed, under single cover, and give dil. wine. In intervals betw. affus., cold-water comp. on head and abd., i. H-52.

JACCOUD'S TREATMENT.
Milk, qts. j to ij (1 to 2 litres), daily; bouillon and red wine, if necess. *In adynamia*, brandy, ℥iv to viij (124.0 to 248.0 grm.),

AUTHORS QUOTED.

ENTERIC (TYPHOID) FEVER (*continued*).

SUDDEN DEATHS—Latil, i. H-34; Libouroux, McPhedran, McWilliam, i. H-35.

TREATMENT—

DURING DISEASE, IN ADULTS—Harley, Brand, Jaccoud, i. H-45; Jaccoud, Bouchard, Burt, i. H-46; N. S. Davis, Jr., Buchman, Backhaus, Mosler, Cantani, Bartlett, Kalb, i. H-47; J. Mitchell Clarke, Petteruti, i. H-48; Testi, Prince, Day, Tarbox, i. H-49; Smythe, Lacour, Fürbringer, Baruch, Brand, Delafield, i. H-50; Winternitz, Brand, Hunt, Anuschat, Bataille, i. H-51; Brand, anon., i. H-52.

IN CONVALESCENCE—Woodbury, Hutchinson, i. H-52.

IN INFANTS AND CHILDREN—Castelaine, Gillet, i. H-44.

ENTERITIS—

CONGENITAL CHOLERIFORM—Schoppe, Priessnitz, ii. L-14.

ENURESIS—Oseretzkowski, Peyer, Gersuny, i. G-40; Gersuny, Baruch, Watson, Gleason, Descroizilles, Guinon, Walters, Richards, Black, Perret, Devie, Picard, Jamin, i. G-41; Jamin, Clark, i. G-42.

EPHEDRA VULGARIS (MYDRIATIC)—Wriese, v. A-51.

EPIDEMIOLOGY—John B. Hamilton, iv. M-1.

EPILEPSY—

ALCOHOLIC—C. L. Dodge, J. P. Crozer Griffith, iv. A-9.

PATHOLOGY—Hughlings Jackson and Beevor, ii. A-55; Péan, Chaslin, Frazer, Binswanger, ii. A-56; Rosenbach, Feré, Pick, Salzer, iv. A-57; Billroth, Minot, Salzer, Unnerricht, Billroth, ii. A-58; Kohn, ii. A-59.

SYMPTOMATOLOGY—Hare, ii. A-59; Hay, Charcot, ii. A-60; Charcot, Savage, Meyer, Russell, ii. A-61; Bourneville and Courbarien, Roller, ii. A-62; Lloyd, ANNUAL 1889, Althaus, Greenwood, ii. A-64; Féré, Bravais, ii. A-65; Féré, Junod, ii. A-66; Lemoine, Féré, Brown-Séquard, ii. A-67; Hénocque, Féré, Brown-Séquard, Capitan, Eloy, ii. A-68.

TREATMENT—Doyon, Jamot, ii. A-68; Gouber, Bourneville, Da Costa, Diller, Lemoine, Crocq, Starr, E. D. Fisher, L. C. Gray, ii. A-69; Didier, Charcot, Lyon, Roman von Baracz, Alexander, ii. A-70; Alexander, Sidney Jones, Lussana and Gallerani, Chirone, Albertoni, ii. A-71; Lussana and Gallerani, Féré, Wildermuth, Hill, Hinsdale, ii. A-72; Morton, ii. A-73.

EPILEPSY, PROCURSIVE—Ladame, Mairet, ii. A-73; Wacques, ii. A-74.

GENERAL INDEX.

Ergot—ergosterine—cornutine.....v. A- 51

Erysipelas..........iii. O- 15
  etiology and pathology..........iii. O- 15
  treatment..........iii. O- 18

Erythema, blennorrhagic..........iv. A- 1
  multiforme..........iv. A- 2
  in newborn..........ii. L- 19
  with icterus..........iv. A- 1

Erythrina corralloides, therapeutic action..........v. A- 52

Erythromelalgia, or neuritis plantaris..........ii. C- 6

Eschscholtzia Californica..........v. B- 30
  therapeutic uses..........v. A- 52

Eseridine (see Physostigma).......v. A-108

Ether..........v. B- 30

Ether anæsthesia..........iii. P- 10
  deaths..........iii. P- 11
  dementia following..........iii. P- 11
  methods..........iii. P- 10
  new inhalers..........iii. P- 11
    Burge's inhaler..........iii. P- 11
    Flood's inhaler..........iii. P- 11
    Eddy's inhaler..........iii. P- 11

THERAPEUSIS.

Enteric Fever, in Adult (*continued*).

daily, with ext. quinquinæ, ʒj (4.0 grm.); acet. ammon., ʒiss (6.0 grm.), i. H-45; sponge whole body with mixt. of cold wat. and arom. vineg. 4 t.d. *if temp. is* 102.2° F. (39° C.), 6 t.d. if 103° F. (39.50° C.), 8 t.d. if 104° F. (40° C.). *If pulm. complic.*, 3 to 4 dry cups on inf. extrem., repeated if necess., n. and m.; ac. salicyl. and quin. as antipyretics; digitalis as card. stim. *If card. compl.*, quin. hydrobrom.; no ac. salicyl. if bronch. catarrh. If pulse feeble from quin., use digitalis, i. H-47.

Kalb's (Abortive) Treatment.

Innunct. of merc. oint.: Ungt. hg., gr. xv (1 grm.), ev. n.; rub in thighs and abd. altern. for 6 n. for ½ hr. each n.; cal. and op. pills accord. to bowels; alcohol methodically, i. H-48.

Mosler's Treatment.

Intest. inject of ac. tannic. *Cantani's cholera meth.*: ℞ Ac. tannic., gr. xxx (2.0 grm.); aq., qt. ij (2 litres)—M. Incr. ac. tan. to ʒiiss (10 grm.) later; inject 2 t.d., pat. on back, i. H-47.

Complications.

Cellulitis.

Of forearm: Free incis., borac. foment., i. H-30. *Of neck*: Median incis. betw. jaw and hyoid bone.

Gangrene.

Left Leg: Amputation, i. H-32.

Hæmorrhage.

Epistaxis: Tampon; sol. Monsell, i. H-32.

Laryngeal Œdema.

Tracheotomy, i. H-31.

Perforation.

Morphine; ice to abd.; iced milk and champagne; "opium treatment," i. H-33.

Convalescence.

Coca prepara. instead of digital.; contin. exclus. milk diet 3 or 4 d. after complete defervesc., or add only animal broths; then soft-boiled eggs, juice of rare meat, milk-toast, farinac. food. *At end of 1 wk.*, soft pt. of oysters and fish; *in 10 days*, light meat of broiled chicken; *in 2 wks.*, butchers' meat. All articles in small quantities at first, i. H-52. Caffeine, v. A-25; chloroform-water, v. A-36; native elix. of coca, v. A-39.

in Children.

Castelain's Treatment.

Begin with mild purg. *For fever*, cool sponging, quin., antipyrin; tonics and alcohol, p. r. n.; *later*, incr. freq. of spong. or luke-warm baths, 84° to 90° F. (30° to 32° C.). Naphthol. and bism. salicyl. *for intest. antisepsis. In 3rd period*, reduce antipyret. med., sponging only, no baths; incr. alcohol. Pullna or Hunyad. wat. to move bow., if nec.; quin. or digital. *for ataxic phenom.*; digital. *if incr. febrile act.*; musk, bromides, digitalis *for delirium*; dry cups *if pulmon. complic.*; if *sudden rise in temp. dur. convalesc.*, withdraw solid food, i. H-44; acetanilid, v. A-4.

AUTHORS QUOTED.

Epistaxis—Geneuil, Dujardin-Beaumetz, J. W. McCoy, anon., iv. D-18.

Epulis—De Larabrie, iii. J-9.

Erectile Tumors—
  Electricity in—Th. Gessler, v. C-11; John Duncan, Lacaille, v. C-12; Seigenur, Redard, v. C-13.

Erethism—Coe, ii. H-1; Wylie, Nicolls, Grandin, Hanks, Dudley, ii. H-2.

Ergot—Ergosterine—Cornutine—Tanret, v. A-51; H. Thompson, D. W. Prentiss, v. A-52.

Erysipelas—
  Etiology and Pathology—Fehleisen, Thiry, iii. O-15; Thiry, Verneuil and Clado, B. K. Rachford, Metschnikoff, Baumgarten, iii. O-16; Rachford, Rippert and Holmfield, iii. O-17; Whittaker, iii. O-18.
  Treatment—Kraske, Riedel and Lauenstein, iii. O-18; Seibert, Wölfler, Kraske, iii. O-19; Kröll, Hueter, Rosenbach, Ulrich, Tison, iii. O-20.

Erythema—
  Blennorrhagic—Dubreuilh, iv. A-1.
  Multiform—Schoetz, iv. A-2.
  in Newborn—Vineta-Bellaserra, Di Lorenzo, ii. L-19.
  with Icterus—Muselier, Féréol, iv. A-1.

Erythrina Coralloides, Therapeutic Action—Allamerano, v. A-52.

Erythromelalgia, or Neuritis Plantaris—Morgan, ii. C-6; Goltz, Hughes, ii. C-7.

Eschscholtzia Californica—Ter-Zakariantz, v. B-30.
  Therapeutic Uses—Ter-Zakariantz, v. A-52.

Ether—Hare, Kratschmer, v. B-30.

Ether Anæsthesia—
  Deaths—Weir, iii. P-11; MacKellar, Clover, W. Duncan McKim, iii. P-12.
  Dementia following—G. H. Savage, John Homans, iii. P-11.
  Methods—Geo. F. Shrady, A. Pulido, Morales, Pérez, iii. P-10; Parkinson, Fritz Füter, Lovett, iii. P-11.
  New Inhalers—Burge, Flood, Eddy, Allis, iii. P-11.

Ethyl-Bromide Anæsthesia—
  Dangers—Hirsch, anon., iii. P-13.
  Death from—Anon., iii. P-13.
  Effects—Lewin, Eschricht, Diehl, Merck, iii. P-12.
  Methods—Hertz, Esmarch, Skinner, iii. R-12.

GENERAL INDEX.

Ethyl-bromide anæsthesia..........iii. P- 12
  dangers..........iii. P- 12
  death from..........iii. P- 13
  effects..........iii. P- 12
  methods..........iii. P- 12

Eucalyptus, oil of, therapeutic uses v. A- 52

Euphrasia officinalis, therapeutic uses v. A- 52

Exalgine or methylacetanilide v. A- 93, v. B- 30
  ortho-methylacetanilide..........v. B- 36

Excisions..........iii. G- 5
  general consideration..........iii. G- 5
    indications..........iii. G- 5
    moist blood-clot healing....iii. G- 5
    primary excisions..........iii. G- 5
  special excisions—ankle..........iii. G- 9
    elbow..........iii. G- 5
    hip..........iii. G- 6
    humerus (head), for dislocation and fracture..........iii. H- 8
    knee..........iii. G- 7
    shoulder..........iii. G- 5
    wrist..........iii. G- 6
  Wladimiroff-Mikulicz operation..........iii. G- 9

THERAPEUSIS.

Enteric Fever, in Children (*continued*).

Gillet's Treatment. *To reduce temp.*, wrap pat. in blankets saturated with ℞ Ac. carbol., gr. xxx (2 grm.); ol. thymi, gtt. x; ac. acet. dil., ℥xvj (500 grm.)—M. et ft. lotio. Quin., gr. iv (0.25 grm.), to a child of 1 or 2 yrs.; or ac. salicyl. in same dose with brandy, syr. aurant. flor. and lettuce-water. *Sore throat*, garg. of glyc. and borax; *Stomatitis*, potass. chlorate; *if diarrhœa*, intestinal lavage ac. boric. in boiled water (3 %), i. H-44. *To check diarrhœa*, injec. of ℞ Infus. chamomile, ℥iss (50 grm.); amyli, ʒj (4.0 grm.); or liq. calcis, ℥iss (50.0 grm.); add laudanum (Sydenham), for 1 yr. old, gtt. ss.; for 2 to 3 yrs. old, gtt. ij—M. et. ft. inject. *For cerebral excitement*, camph., musk, sod. brom., or chloral; for *stimulant*, infus. of coffee: *during convalesc.*, regular alimenta.; tonics, quin. and iron, wine and arom. stimulat. baths, i. H-45.

Enteritis in Adult. Resorcin, v. A-116; saccharin, v. A-120; salol and bism. subnitr., v. A-122; thymol, gr. ij to iij (0.13 to 0.19 grm.), with castile-soap, in ac. and chr. forms, v. A-136.

Congenital Choleriform. Direct curr. of blood toward skin; cold or warm wet pack of Priessnitz ev. 2 or 3 hrs. *If collapse*, mustard-baths, temp. 35° to 40° C (95° to 104° F.), for 10 or 15 min.; also gtt. x to xij cognac or rich wine, or tea with cognac. *When vom. and diarrh.*, opium when heart is strong, ii. L-14.

Enuresis. *Gersuny's plastic op.*: Atrop. to physiol. effect; rhus. tox.; rhus. arom.; syr. of strychn. in grad. incr. dos.; pulsatilla; pot. brom. and bellad. or camph. monobrom. and bellad.; antipyrin, gr. xv to xxx (1 to 2 grm.), in 2 dos. in evg. to child 5 to 8 yrs., for 1 wk., and then 1 wk. intermiss. Electr., induced curr., one pole in membr. part of ureth., other in hypogastr., i. G-41. *In girls*, electrode to entire ureth. (neg.), positive to thigh; ureth. sound, i. G-42.

Epilepsy. Bromide potass., ʒj to iss (4 to 6 grm.), daily, ii. A-68; auri. brom., gr. ⅛ (0.008) daily to ad.; to inft., gr. 1-20 to 1-10 (0.003 to 0.006 grm.), daily. Nickel brom.; antifebr.; antipyrin, gr. xxx (2 grm.), daily; simulo (?), ii. A-68; faradism to differentiate E. from hysteria; ligature of vertebral artery, ii. A-70; Alexander's op., ii. A-71. Act. cant. to scalp; amyl hydrate [♏xv to lxxv (1 to 5 grm.)], if freq. attacks, marked bromism or nocturnal E. altern. with brom., and in recent cases with atrop.; borax, gr. x (0.65 grm.), t.i.d. Removal of reflex causes,—diseased testicle, foreign body in nose, ii. A-72; operat. for equina varus as reflex cause, ii.

AUTHORS QUOTED.

Eucalyptus, Oil of, Therapeutic Uses—J. Ronssel, v. A-52.

Euphrasia Officinalis, Therapeutic Uses—G. M. Garland, v. A-52.

Exalgine or Methylacetanilide—Gaudineau, v. B-30.
  Ortho-methylacetanilide—Dujardin-Beaumetz and Bardet, v. B-36.

Excisions—
  General Considerations—
    Indications—Annandale, iii. G-5.
    Moist Blood-clot Healing—Schede, Phelps, iii. G-5.
    Primary Excisions—Annandale, iii. G-5.
  Special Excisions—
    Ankle—Ollier, Huntington, Schmidt, iii. G-9.
    Elbow—Murdock, iii. G-5; Ollier, iii. G-6.
    Hip—Schede, Krause, Volkmann, Podres, Diakonoff, Barker, Battle, Cluness, iii. G-6.
    Humerus (Head), for Dislocation and Fracture—Manclaire, iii. H-8.
    Knee—Boeckel, Ollier and Championnière, Fowler, Miller, iii. G-7; Conner, Lauenstein, Koenig, Petersen, Neugebauer, iii. G-8; Petersen, Ollier, Wolfe, iii. G-9.
    Shoulder—Fenger, iii. G-5.
    Wrist—Lauenstein, iii. G-6.
  Wladimiroff-Mikulicz Operation—Chaput, Berger, Ollier, iii. G-9.

Exophthalmic Goitre—
  Etiology—R. G. Curtin, L. Jumon, Jaccoud, H. R. Hopkins, Dauscher, iv. H-6.
  Pathology—Leflaive, W. H. White, Hammar, iv. H-6; Schoot, iv. H-7.
  Symptomatology and Complications—Millard, Charcot, A. Eulenburg, Oppenheim, A. R. Manby, H. Barnes Ballen, A. Joffroy, iv. H-7.
  Treatment—Eulenburg, Schoot, H. Dauscher, iv. H-7; Jumon, H. Mueller, Valieri, Thyssen, Hopmann, B. Fraenkel, F. Semon, Ch. Audry, iv. H-8.

Extremities—
  Anomalies—
    Anconeus Muscle, Origin—Brooks, v. G-17.
    Arm, Malformation—Chaput, Ely, F. Eklund, A. Chaintre, v. G-16.
    Bones, Absence of—Freeman, McLaren, Thomas, v. G-18.
    Dactylitis Syphilitica—J. V. Shoemaker, Frederick Lowndes, v. G-16.
    Hand on Side of Forearm—Prest. Roy. Acad. of Med. of Ireland, v. G-17.
    Limbs, Reversal to Lower Type—Hutchinson, v. G-17.
    Megalodactyl—Tachard, v. G-16.
    Megalomelia—Vincent, v. G-16; Delon and Poncet, v. G-17.
    Micromelia—J. H. Morgan, Hutchinson, Lange, Ely, F. Eklund, A. Chaintre, v. G-17.
    Muscles, Anomalies—Labougle, Brooks-Hans Eppinger, v. G-17; F. M. Thigpen, Rudolph Matas, v. G-18.
    Nerves, Anomalies—Labougle, Bertaux, v. G-17.

GENERAL INDEX.

Exophthalmic goitre..................iv. H- 6
  etiology..................iv. H- 6
  pathology..................iv. H- 6
  symptomatology and complications..................iv. H- 7
  treatment..................iv. H- 7
    electricity in..................v. C- 14

Extremities, anomalies of..................v. G- 10
  anconeus-muscle, origin..................v. G- 17
  arm, malformations..................v. G- 17
  bones, absence of..................v. G- 18
  dactylitis syphilitica..................v. G- 16
  hand on side of forearm..................v. G- 17
  limbs, reversal to lower type...v. G- 17
  megalodactyl..................v. G- 16
  megalomelia..................v. G- 16
  micromelia..................v. G- 17
  muscles, anomalies..................v. G- 17
  nerves, anomalies..................v. G- 17
  polydactylism..................v. G-16, 20
  syndactylism..................v. G- 15

Eye—anomalies, embryology, and histological anatomy......iv. B- 1
  choroid, diseases..................iv. B- 79
    chorio-retinitis..................iv. B- 80
    choroiditis..................iv. B- 80
    detachment..................iv. B- 81
    ossification..................iv. B- 80
    rupture..................iv. B- 79
    tumors..................iv. B- 80
      glandular..................iv. B- 81
      sarcoma..................iv. B- 80

THERAPEUSIS.

EPILEPSY (*continued*).
A-73; trephining at site of injury, iii. A-25; chloral, v. A-31; cicutine, gr. 1-64 (0.001 grm.), v. A-37; camphor monobrom., gr. ix (0.6 grm.); mutisia viciæfol., v. A-94; amyl nitrite inhal. bef. attack, v. A-95; rubidium brom., v. A-118; solanum carolin., v. A-123; sulphonal, v. A-130. Electricity: Descend. curr. from vertex to epigastr.; current should anticipate paroxysm, v. C-9. Exercise in open air, fol. by drink of hot water and galvaniza. of brain, ii. C-45.

ALCOHOLIC.
Pil. cath. co. and potass. brom; apomorphine, gr. 1-12 (0.005 grm.), v. A-9.

EPISTAXIS.
Wash nose with fresh water; inject fresh lemon-juice from glass ureth. syr.; flex. rub. tube, soft-rubber bag, one end in nose; fill with water, iv. D-18; bryonia alba. v. A-24.

ERECTILE TUMORS.
Excision, ignipuncture; galvano-cautery; liga. of nourish. art.; inject. sol. ferri perchlor., v. C-11; electrolysis, 40 to 80 milliamp., v. C-12; intensity never to exceed 25 milliamp., sevl. needles used connect. with pos. pole; neg. electrode at some distance; antisept. precau.; after 3 min., curr. slowly reversed and neg. curr. of small intens. passed for 15 seconds; iodof. dressing; when react. ceases (after 3 or 4 d.), repeat application, v. C-14.

ERETHISM.
Non-operative; removal of clitoris, ii. H-2.

ERYSIPELAS.
Tonics and specifics intern., protectives and parasiticides ext. *Kraske's treat.*: Incis. beyond healthy border, dressing of subl. sol. (1 to 2000). Seibert's scarifier; *adhesive-plaster strips* beyond healthy border to encircle affect. surf., iii. O-19; *rubber bands* applied beyond healthy bord.; *ac. carbol.* (alcoh. sol. 5 %) *loc.* after thor. cleansing; *ac. carbol. hypod.*; subl. sol. (1 to 2000) loc.; *ichthyol* and *resorcin* loc. in sol. or ungt. *Ichthyolised collodion*; tinct. iodi; tinct. ferri; white lead; bismuth subnitr.: iodof., loc. Aconitia (Duquesnel's cryst. [gr. 1-400 to 1-200 (0.00015 to 0.0003 grm.)]; jaborandi [ext. fld. ♏xv to lx (1.0 to 4.0 grm.)]; tinct. ferri only a good tonic, not a specific, iii. O-20. Galvanism around affect. pt., anode in centre, and cathode moved slowly around circumfer.; very mild curr.; avoid prod. musc. contract., v. C-6; ichthyol oint. (30 % to 50 %) spread on rags to cover and extend beyond affect. area, iv. A-56; flexile collodion, loc., v. A-45; hydrarg. bichlor. with cacao-butter and vaselin, v. A-58; jaborandi, v. A-85. Sol. ac. picric (6 %) 5 to 10 t. daily loc., v. A-109; thiol siccum 1 p., with starch or zinc oxide 5 p., as dusting-powder, v. A-136.

ERYTHEMA IN NEWBORN.
Bland absorb. powd. *If ulcera.*, use naphthaline, iodof.,

AUTHORS QUOTED.

EXTREMITIES, ANOMALIES (*continued*).
  POLYDACTYLISM—W. A. Smith, C. N. Cavanaugh, Dauvin, Colombe, Marsh, Kollman, v. G-16; E. Bitot, v. G-20.
  SYNDACTYLISM—Verneau, Colin, Bégouin, Proust, v. G-15; R. Redard, W. S. J. Wolff, Fuchs, Dauvin, v. G-16.

EYE—
  ANOMALIES, EMBRYOLOGY AND HISTOLOGICAL ANATOMY—Wagenmann, Van Duyse, Landolt, Zehender and Manz, iv. B-1; Dürrand Schlegtendal, Birnbacker and Czermak, Michaelsen, iv. B-2; Fuchs, Franke, Nuel and Leplat, Smith, Hasbrouck, Rumschewitsch, iv. B-3; Wicherkiewicz, Bock, Rumschewitsch, iv. B-4; Weeks, Seely, Hasbrouck, Jitoff, Maklakoff, Rumschewitsch, Meighan, Blessig, iv, B-5; Rumschewitsch, Daraignes and Labougle, Badal, Carpentier, Dor, Hess, iv. B-6; Leydig and Desfosses, Brand, iv. B-7; Lennox, Beselin, iv. B-8; Neumow, Ulrich, iv. B-9; Perlia, Weigert, Guddon, Bernheimer, iv. B-10.

  CHOROID, DISEASES—
    CHORIO-RETINITIS—Schiess-Gemuseus, iv. B-80.
    CHOROIDITIS—Hutchinson, Hirschberg, iv. B 80.
    DETACHMENT—Groenouw, iv. B-81.
    OSSIFICATION—Campbell, L. Grossmann, Brockman, iv. B-80.
    RUPTURE—Coggin, Doyne, iv. B-79.
    TUMORS—Burnett, iv. B-80; Gayet, Buffun, Bennett, Benson, iv. B-81.
  CILIARY REGION, DISEASES—
    SARCOMA—Snell, iv. B-58.
    SENILE UVEA—Kerschbaumer, iv. B-58.
  CONJUNCTIVA, DISEASES—
    ARGYRIA—Meighan, Grossman, ANNUAL, 1889, iv. B-36.
    ATROPHY—Tarnau, iv. B-38.
    BULBAR INFLAMMATION—H. D. Noyes, iv. B-36.
    CONJUNCTIVITIS—
      GRANULAR AND TRACHOMA—Dimissas, iv. B-42; Pfalz, Saemisch, Siegfried Fischer, iv. B-43; Venneman, Treitel, Vossius, Schroeder, Maklakoff, iv. B-44; Prince, Landolt, Arnauts, Despris, Dobossedoff, Maklakoff.
      INFECTIOUS—Storet, Chiralt, Toelsohn, Maklakoff, Culver, Basevi, iv. B-42.
      SIMPLE—Costomiris, iv. B-38.
    CYSTICERCUS, SUBCONJUNCTIVAL—Werner, iv. B-46.
    DACRYOCYSTITIS—Hugh E. Jones, Browne, iv. B-42.
    MICROSCOPIC EXAMINATIONS IN—Schiele, Berlin, iv. B-37.
    NECROSIS—Leber and Wagenmann, iv. B-37.
    ŒDEMA AND CONGESTION FROM PTOMAINES—Ratton, iv. B-36.
    OPHTHALMIA—
      GONORRHŒAL—Gifford, iv. B-41.
      NEONATORUM—Minor, ANNUAL 1889, Howe, iv. B-39; Karl Grossman, Williams, iv. B-40; Sant' Anna, Credé, iv. B-41.
      PURULENT—Hugh E. Jones, Browne, iv. B-41.

GENERAL INDEX.

Eye, choroid, diseases (*continued*).

ciliary region, diseases..........iv. B- 58

sarcoma..............................iv. B- 58

senile uvea..........................iv. B- 58

conjunctiva, diseases.............iv. B- 36

argyria...............................iv. B- 36

atrophy...............................iv. B- 38

bulbar inflammation...........iv. B- 36

conjunctivitis, granular, and trachoma..................iv. B- 42

infectious.........................iv. B- 42

simple..............................iv. B- 38

cysticercus, subconjunctival iv. B- 46

dacryocystitis....................iv. B- 42

microscopic examinations in iv. B- 37

necrosis..............................iv. B- 37

œdema and congestion from ptomaines.....................iv. B- 36

ophthalmia, gonorrhœal....iv. B- 41

neonatorum...................iv. B- 39

purulent........................iv. B- 41

pannus................................iv. B- 43

pigment-spot, subconjunctival iv. B- 36

pterygia..............................iv. B- 45

reflexes...............................iv. B- 47

symblepharon....................iv. B- 38

tuberculosis, primary..........iv. B- 45

tumors—adeno-chondro-lipoma iv. B- 46

dermoid.........................iv. B- 37

THERAPEUSIS.

ERYTHEMA IN NEWBORN (*continued*).
or 5 % sol. aseptol: cleanse skin with 2 % sol. ac. bor., apply bland oint., cover whole body with compress of carbol. cotton, anus and ext. genitals *not* included,, ii. L-19; gentle galvanization, v. C-6; flexile collodion, painted on pt., v. A-45.

ERYTHROMELALGIA.
Morph. [gr. ⅛ to ½ (0.008 to 0.03 grm.)] inject hypod. on soles of feet twice daily, continuously, ii. C-7.

EXOPHTHALMIC GOITRE.
High altitudes; lighter forms of cold-water treat. and carbonic-acid baths; Weir Mitchell or Playfair cure; milk cure; Koumiss cure, iv. H-7. Hydro-electric baths and general electris., with tonics and strengthening diet, iv. H-7. Avoid meat and spirits; use cold compresses to eye. Inunctions of ungt. iodi: arsenic intern.; cultivated hemp (Thuja). Inject pure iodine; caustics, incisions, etc., iv. H-8; cannabis indica, v. A-27; lycopus virgin., v. A-88; methyl-chloride spray, v. A-92; strophanthus tinct., gtt. v, v. A-128; tinct. veratr. vir., 20 to 25 drops daily, v. A-137. Galvanism; combined use of farad. During 20 or 30 sittings, stabile and labile neg. electris. of vago-sympathetic and of goitre; pos. electr. to nucha, intens. 6 to 10 milliamp. for 8 to 10 min.; immed. afterw. pos. electr. to nucha with stab. neg. electris. of præcordial reg., intensity 7 to 12 milliamp. for 5 to 7 min.; *séances* 3 times a week, 2 a minimum; may add stab. electris. of verteb. col. or of abdom. (10 to 15 milliamp. for 1½ to 2 min.); afterw. gen'l faradis. (Rockwell's meth.) or abdom. faradis. (for 7 to 8 min.) for 15 to 20 d.; small intens. at first, v. C-15.

REFLEX.
Removal of pharyngeal and nasal lesions, iv. H-8.

EYE, DISEASES OF.

CHOROID, DISEASES.

CHORIO-RETINITIS.
Traumatic: Loc. bleedg. and purg., sweat-baths, change of resid. and hydropath., enucl. of aff. eye, iv. B-80.

OSSIFICATION.
If symp. aff. of other eye, enucl. dis. eye, iv. B-80.

TUMORS.
Enucleation, iv. B-81.

CONJUNCTIVA, DISEASES.

CONJUNCTIVITIS.

GRANULAR AND TRACHOMA.
Mild cases, caut. with argent. nit., immed. neutr., altern. with cupr. sulph.; Panas's sol. of hg. biniod. or concentr. sol. ac. bor. with oint. of yel. precip., made with glyc. of starch, app. ev. evng.; hygiene and tonics. In severe obstin. cases, perf. excis. of sup. *cul-de-sac*, fol. by thermo-caut. to remain. suspect. pts.; complicat. met by ac. bor. washes, weak atrop., pilocarp., etc. If obstin. pannus, peritomy. Corros. subl. dress., fol. by ac. borac., cupr. sulph. only in atrophic stage. In early acute cat. condit.,

AUTHORS QUOTED.

EYE, CONJUNCTIVA, DISEASES (*continued*).

PANNUS—Dimissas, Siegfried, Fischer, iv. B-43; Gruening, iv. B-44; Landolt, Arnauts, iv. B-45.

PIGMENT-SPOT, SUBCONJUNCTIVAL—Reid, iv. B-36; Collins, MacKinlay, iv. B-37.

PTERYGIA—Alt, iv. B-45.

REFLEXES—Feilchenfeld, iv. B-47.

SYMBLEPHARON—Bell Taylor, Fischer, iv. B-38.

TUBERCULOSIS, PRIMARY—Gordon, Norrie, iv. B-45; Holger Mygind, iv. B-46.

TUMORS—

ADENO-CHONDRO-LIPOMA—Alt, iv. B-46.

DERMOID—Wallenberg, iv. B-37.

EPITHELIOMA—Buffun, iv. B-46.

LEUCOSARCOMA—Grossman, iv. B-47.

LUPUS, PRIMARY—Hill Griffith, iv. B-46.

MELANOSARCOMA—Silex, Barrenechea, Buffun, iv. B-47.

XEROPHTHALMIA—A. D. Williams, iv. B-38.

CORNEA, DISEASES—

AMYLOID DEGENERATION—Fravel, iv. B-54.

DISCOLORATION—Vossius, Baumgarten, iv. B-48; Vossius, Leber, iv. B-49.

FIBRIN COAGULATION—Leber, Baumgarten, iv B-48.

KERATALGIA, TRAUMATIC—Bronner, Grandclément, iv. B-49; Bronner, iv. B-50.

KERATITIS, BAND—Boyle, iv. B-50.

BULLOSA—Meyer, Brugger, iv. B-49.

CONTAGIOSA—Frank S. Billings, iv. B-50.

DENDROIDES MYCOTICA EXULCERANS—Lubinsky, iv. B-52.

SUBEPITHELIALIS CENTRALIS—Adler, iv. B-51.

KERATOPLASTY—TRANSPLANTATION—Stellwag von Carion, Chisolm, A. R. Baker, iv. B-52; Wolfe, Dürr, von Hippel, iv. B-53.

OPACITY, CENTRAL—Boyle, iv. B-47; Stellwag von Carion, Chisolm, A. R. Baker, iv. B-52; Wolfe, Dürr, Hippel, iv. B-53.

SILVER IMAGES—Mennen, Hassloch, Stricker, Cohnheim, iv. B-48.

STAPHYLOMA—Wolfe, iv. B-50; Mitivier, iv. B-52.

TRAUMATISM, EFFECT—Peters, iv. B-47.

TUMORS, DERMOID—A. D. Williams, iv. B-54.

ULCERATION—White, iv. B-52; Retton, Ford, iv. B-53.

WOUNDS—Gastaldo, Chiralt, iv. B-49; Valude, Ganio Pinto, iv. B-52; Dodge, iv. B-53.

XEROPHTHALMOS—Meighan, iv. B-54.

EXTRA-OCULAR MUSCLES, DISEASES—

ANOMALIES—French, iv. B-35.

ASTHENOPIA—C. F. Sterling, iv. B-35.

CYST—Muel and Leplat, iv. B-35.

GENERAL INDEX.

Eye, conjunctiva, tumors (*continued*).
epithelioma....................iv. B- 46
leucosarcoma....................iv. B- 47
lupus, primary................iv. B- 46
melanosarcoma................iv. B- 47
xerophthalmia....................iv. B- 38
cornea, diseases....................iv. B- 47
amyloid degeneration........iv. B- 54
discoloration ....iv. B- 48
fibrin coagulation..............iv. B- 48
keratalgia, traumatic........iv. B- 49
keratitis, band-, binocular..iv. B- 50
bullosa..........................iv. B- 49
contagiosa........................iv. B- 50
dendroides mycotica exulcerans ....iv. B- 51
subepithelialis centralis...iv. B- 52
keratoplasty - transplantation iv. B- 52
opacity, central congenital..iv. B- 47
silver images in inflamed....iv. B- 48
staphyloma..............iv. B-50, 52, 53
traumatism, effect.............iv. B- 47
tumors, dermoid................iv. B- 54
ulceration.....................iv. B-52, 53
wounds....................iv. B-49, 52, 53
xerophthalmos..................iv. B- 54
extra-ocular muscles, diseases iv. B- 31
anomalies..........................iv. B- 35
asthenopia........................iv. B- 35
cyst, serous or mucous.......iv. B- 35

THERAPEUSIS.

Eye, Conjunctivitis, Granular and Trachoma (*continued*).
use strong aq. sol. argent. nitr. or a. n. fusa., iv. B-43. In acute stage use antiphlog.; if papil. growths, incr. warm, mild astring., espec. wk. sol. argent. nitr. In transit. stage from acute to chr., use cupr. sulph. stick to stim. indol. gran.; red and yel. precip. oint. in early stages; lactic ac. in fibr. degen. of foll.; in chron. stage, electrol.; "imperfect suture;" cocaine; traumatism by metal threads, iv. B-44. "Expression" by Prince's forceps; instill. 2 t. w. of subl. sol. (1 to 120), fol. cocaine; subl. sol. (1 to 400 or 1 to 500), gtt. ij, t. i. d.; collyr. cupr. sulph. in milder forms; daily caut. of conj. in severer types; more chron., excis. of hypert. gran., iv. B-45; naphthol, but not when corn. ulcera.; atrop. and daily instil. creolin sol. 10%; sol. ac. boric., 2% to 4%, iv. B-106.
Simple, With Corneal Affection.
Direct massage, with insuff. of pulv. ac. bor. and instill. of sol. arg. nitr. and ac. bor.; short *séances*, slight press., increas. both, iv. B-38; pulv. iodol. insuffl., v. A-85.
Dacryocystitis.
Pierced canula closed and round. at distal end, attach. to irriga. tube and reservoir; Panas's sol., ℥viij (250c. cm.), at each irriga., iv. B-42.
Ophthalmia.
Gonorrhœal.
Prophyl.: Cleanse skin and lids of well eye with moist cloth, apply 2% sol. arg. nit., rubbing well into roots of lashes and around inn. canth., 2 drops of the sol. into upper and lower *cul-de-sacs;* close eye; pad of absorb. cot. from nose to foreh.; cov. out. surf. of cot. with collod. and seal edges to skin. In old child and ad., watch-glass betw. cheese-cloth, pasted to skin at edges; exc. at tempor. side (to prevent accum. of moist.). *Curative:* Cleanliness, cold, arg. nitr., iv. B-41. ℞ Cubebæ pulv., p. 1 to 2; lanolin, p. 12—M. To ext. surf. lid. Hydrog. diox., iv. B-105.
Neonatorum.
Prophyl.: In partur., cleanse vagin. with 2 % sol. ac. carbol.; when child born, wash lids with sol. ac. carbol., and conjunctiv. sacs with sat. sol. ac. bor. If infl., use ac. bor. sol. and 2 % sol. argent. nitr.; keep clean with bor. sol.; use 2% sol. argent. 2 t. d., and ½ % sol. atrop. once d.; if lids swollen, cold compresses, iv. B-39: Credé's meth., iv. B-41. Biniodide of merc. spray (1 to 3000), v. A-59.
Purulent.
Irriga. lids with Eustach. cath. and Panas's sol., iv. B-41; peroxid. hydrog.; gran. of brucine and quin. hydroferrocyanate int.; oint. atrop. and red ox. merc. loc., iv. B-105.
Pannus.
Peritomy if obstinate, iv. B-143; electrol., curetting the cornea, iv. B-44; instill. 2 t.w. of subl. sol. (1 to 120) fol. cocaine; subl. sol. (1 to

AUTHORS QUOTED.

Eye, Extra-ocular Muscles, Diseases (*continued*).
Heterophoria—Lewis, Standish, Deady, iv. B-34; Campbell, iv. B-35.
Insufficiency — McKay, iv. B-34; de Schweinitz, Musser, iv. B-35.
Ophthalmoplegia—Hubbell, iv. B-35; C. M. Thompson, iv. B-36.
Strabismus, Convergent — Gardner, Landolt, Vialet, iv. B-34.
Strabismus, Divergent—Fergus, Donder, Schweigger, Stevens, Marlow, Stilling, Landolt, Abadie, Motais, Dianouse, de Wecker, Nuel, Stevens, iv. B-31; Tweedy, Maire, Beard, Stevens, Eperon, iv. B-32; Graefe, Alfred Graefe, Landolt, iv. B-33.
Glaucoma—Picque, iv. B-90; de Wecker, Landolt, Rijnberk, Straub, Annual, 1889, iv. B-91; Krjukow, Maklakoff, Logetschnikoff, Kneiss and Weber, Gruening, Hutchinson, iv. B-92; Critchett, Mules, Tyrell, Little, Charles S. Bull, Priestley Smith, iv. B-94; Nettleship, Bull, iv. B-95; Hirschberg, Keyser, Graefe, Dabney, Snell, Macnaughton Jones, iv. B-96; Cross, Hill Griffith, Adamük, Maklakoff, Krukoff, iv. B-97.
Instruments—
Capsule-hook—Bronner, iv. B-75.
Cataract-knife—Bettremieux, iv. B-110.
Electro-magnet—Tiffany, Hirshberg, iv. B-111.
Extraction-fork—Hansell, iv. B-110.
Fixation-mirror — W. N. Whitney, iv. B-109.
Irrigator—Wicherkiewicz, iv. B-73.
Operating-bench, for Children — Anderson, iv. B-110.
Perimeter, Portable — Schweigger, iv. B-109.
Plaques, for Upper-lid Operations—Landolt, iv. B-111.
Record-blanks—Allyn, iv. B-109.
Spring-speculum—Walker, iv. B-110.
Strabismometer—Weeks, iv. B-110.
Iris, Diseases—
Heterochromia Iridum—Sym, iv. B-55.
Iridocyclitis and Iridochoroiditis—Schoeler, Schweigger, Leplat, iv. B-56.
Irido-dialysis—Hamenway, iv. B-55.
Iritis, Granulation — Collins, Hill Griffith, iv. B-56.
Monocular Suppuration — Rockliffe, iv. B-55.
Traumatic—Weiss, iv. B-54.
Myosis, Medicinal—Gibson and Felkin, iv. B-56.

GENERAL INDEX.

Eye, extra-ocular muscles, diseases (*continued*).

heterophoria..................iv. B-34, 35

insufficiency..................iv. B-34, 35

ophthalmoplegia..................iv. B- 35

strabismus, convergent......iv. B- 34

strabismus, divergent.........iv. B- 31

glaucoma..............................iv. B- 90

instruments.............................iv. B-109

capsule-hook, Bronner's.....iv. B- 75

cataract-knife, Bettremieux's iv. B-110

electro-magnet, Tiffany's....iv. B-111

extraction-fork, Hansell's...iv. B-110

fixation-mirror, Whitney's.iv. B-109

irrigator, Undine..................iv. B- 73

operating-bench for children, Anderson's......................iv. B-110

perimeter, portable, Schweigger's.................................iv. B-109

plaques, upper-lid operations, Landolt's..........................iv. B-111

record-blanks, Allyn's.......iv. B-109

spring-speculum, Walker's.iv. B-110

strabismometer, Weeks's.....iv. B-110

iris, diseases..........................iv. B- 54

heterochromia iridum........iv. B- 55

iridocylitis and iridochoroiditis iv. B- 56

irido-dialysis........................iv. B- 55

iritis, granulation, non-penetrating trauma............iv. B- 56

monocular suppurative...iv. B- 55

traumatic, penetrating hair..............................iv. B- 54

myosis, medicinal.............iv. B- 58

THERAPEUSIS.

Eye, Conjunctiva, Diseases, Pannus (*continued*).
400 or 1 to 500), gtt. ij, t.i.d., iv. B-45.

Pterygia.
Excis.; caut. uncov. port. of sclero-corn. tiss. with ac. carbol. pur., fol. by very freq. instil. of subl. sol. (1–3000 to 1–5000) for sevl. d., iv. B-45.

Symblepharon.
Transpl. skin from up. lid of fellow-eye; transpl. vagin. muc. membr.; no stitches; mull.; lids closed by adhes. strips, iv. B-38.

Cornea, Diseases.

Keratalgia.
Traumatic: Massage and hot fomenta. for sev. wks.; if not rel., rem. mac. corneæ with knife; massage with ungt. hg. ox. fl., iv. B-50.

Keratitis — Subepithelialis Centralis.
Atrop., cold compress., iv. B-51. *Ulcerative, vascular, strumous, and suppurative forms:* Peritomy; also in *chronic form*, iv. B-53. Creolin sol., 1 % to 2 %; cocaine in ol. ricin.; gran. cicutine, and instil. of atrop. for pain; sol. pilocarp. mur., ¼ %, iv. B-106.

Opacity.
Keratoplasty, iv. B-52; scraping, daily frict.; galvano-caut., iv. B-53; massage, after introd. of small particle ungt. hg. ox. fl. into conjunctiv. *cul-de-sac*, for few minutes, iv. B-106.

Staphyloma.
Total: Remov. oval-shaped flap from cent. of corn., remove lens, coapt edges of wound by sut. (silk), iv. B-50. *Opaque:* Free from base, suture edges of wound to prevent prolapsus iridis, iv. B-52; thermo-caut., absciss. of eye; perikerotomy, fol. by water dress.; eyes closed; no atrop. unless iritis, iv. B-54.

Ulceration.
Without iritis: Eserine instil. till p. contr.; if perfora. not immin., carefully cauter. ulc. with 2 % to 3 % sol. arg. nitr., fol. by hot-wat. app., iv. B-52; thermo-caut., heat, espec. in strum. cases, iv. B-53; borax and tinct. bellad., iv. B-105.

Wounds.
With *w. of iris:* Excis. protrud. iris, replace incarcera. port. into ant. chamb., fol. by altern. instil. of atrop. and eserine, iv. B-49; replace iris, Gamo Pinto's op., iv. B-52; sutures, iv. B-53. *If suppuration*, open wound, wash ant. chamber with subl. sol. (1 to 1000); touch edges of wnd. with galv. caut.; repeat ev. 5 or 6 hrs. if necess., iv. B-109.

Extra-ocular Muscles, Diseases.

Anomalies.
Grad. tenot., muscle exercise, correct. of refract. err., iv. B-35.

Asthenopia.
Low prism with refr. corr.; tenot., iv. B-35.

Heterophoria.
In hyperphoria, tenot.; exercise with prisms, iv. B-35.

Insufficiency.
Prisms; grad. tenot. if insuff. too great for prisms, iv. B-34; when lenses and prisms not suffic., when

AUTHORS QUOTED.

Eye, Iris, Diseases (*continued*).

Oscillatio Pupillæ — Gordon, Norrie, Holger Mygind, iv. B-58.

Paralysis, Sphincter—Schapringer, iv. B-55.

Rupture—Clark, Collins, iv. B-54.

Tumors—

Cysts—Henry W. Williams, Benson, iv. B-56; Schmidt-Rimpler, iv. B-57.

Sarcoma—Andrews, Webster and Van Giesen, iv. B-57; Ayers, Buffun, Sanford, iv. B-58.

Lachrymal Apparatus, Diseases—

Blennorrhœa—Weiss, True, iv. B-30.

Electrolysis of Duct — Gorecki, iv. B-30.

Epiphora—Solomon, iv. B-30.

Erysipelas and Abscess of Sac—Eugene Smith, iv. B-30.

Foreign Body in Duct — Cousins, iv. B-30.

Tumors of Gland—

Adenoma—Snell, iv. B-30.

Adenosarcoma—C. S. Bull, iv- B-31.

Sarcoma—Adler, iv. B-31.

Lens, Diseases—

Bleb-formation—Hirschberg, iv. B-30.

Cataract—

Bronner's Capsule-hook — Bronner, iv. B-75.

Double, Congenital — Eales, iv. B-77.

Extraction—C. S. Bull, iv. B-62; Little, Knapp, Teal, Sichel, iv. B-63; Hewetson, Snell, Graefe, Berry, iv. B-64; Mackinlay, Frost, Mules, Meyers, Collins, Chauveau, Grossman, Little, Wolfe, iv. B-65; Graefe, iv. B-66; Wolfe, Knapp, Boucheron, Graefe, Accacio da Gama, iv. B-67; Knapp, Panas, iv. B-68; Graefe, Gruening, Webster, Veis, Panas, C. T. Bull, St. John Roosa, iv. B-69; Valk, Ayers, Roberts, Bourgeois, Landolt, de Wecker, iv. B-70; Barrett, iv. B-71; Thomas, Maklakoff, Ruprianoff, iv. B-72; Steffar, iv. B-75; Graefe, Becker, Pagenstecher, iv. B-76.

Incipient Senile — Magnus, Schoen, Risley, iv. B-60; Doyne, iv. B-61.

Intra-ocular Lavage — Butler, Critchett, Förster, Tweedy, Panas, Nuel, Gayet, Wicherkiewics, Chibret, iv. B-73; Mugniery, Lippincott, Lee, iv. B-74.

Monocular—J. M. Ball, Jr., iv. B-61.

Needling—Webster, iv. B-74.

Pathology—Tatsuca, iv. B-61; Wagenman, Schirmer, de Wecker, iv. B-77.

Post-operative Hæmorrhage — Barrett, iv. B-74.

GENERAL INDEX.

Eye, iris, diseases (*continued*).
- oscillatio pupillæ..............iv. B- 58
- paralysis, sphincter, intra-ocular hæmorrhage............iv. B- 55
- rupture, traumatic............iv. B- 54
- tumors—cysts....................iv. B- 56
  - sarcoma........................iv. B- 57

lachrymal apparatus, diseases.iv. B- 30
- blennorrhœa.......................iv. B- 30
- electrolysis of duct............iv. B- 30
- epiphora.........................iv. B- 30
- erysipelas and abscess of sac iv. B- 30
- foreign body in duct..........iv. B- 30
- tumors of gland—adenoma.iv. B- 30
  - adenosarcoma.................iv. B- 31
  - sarcoma.........................iv. B- 31

lens, diseases.......................iv. B- 59
- bleb formation....................iv. B- 60
- cataract—Bronner's capsule-hook.........................iv. B- 75
  - double congenital............iv. B- 77
  - extraction.............iv. B-62, 72, 75
  - incipient senile..............iv. B- 60
  - intra-ocular lavage.........iv. B- 73
  - monocular......................iv. B- 61
  - needling........................iv. B- 74
  - pathology......................iv. B- 77
  - post-operative hæmorrhage iv. B- 77
  - post-operative panophthalmitis........................iv. B- 75
  - post-operative treatment.iv. B- 75

THERAPEUSIS.

Eye, Extra-ocular Muscles, Disease, Insufficiency (*continued*).
retina is quiet and no photophobia, use ascend. dos. of tinct. nuc. vom. to full physiol. limit., 15 to 45 drops in ad., iv. B-35.
Ophthalmoplegia.
Incr. dos. potass. iod., iv. B-36.
Strabismus, Convergent.
Correct refr. err.; orthop. exercises; tenot. and stereoscop. exercises, iv. B-34.
Strabismus, Divergent.
Orthop. exercise; *if high degr.*, part. corr. by 1 or more part. tenot. or advanc., fol. by accur. determ. of remain. devia., iv. B-31; Tweedy's meth. of advanc. of int. rect. and Tenon's capsule, scleral stitch to inn. bord. of corn.; caps. attached by conjunctiv. sut.; tenot. of oppos. ext. rect.; adv. by sing. sut., iv. B-32. *In low degree*, caps. advanc. without musc. adv., iv. B-33.

Glaucoma.
Sclerotomy, fol. by iridectomy; myotics; free iridect. after eserin. instil.; if eserin. insuff., perf. iridect., iv. B-92; if gouty tend., treat it; second. gl., use eserine; in old pers. op. may not be necess., iv. B-93; small iridect. fol. by large sclerot. 3 d. after. 1. *In chr. progr. gl.*, early op. 2. If dis. stat. or in prim. stage, delay permiss., but wk. sol. eserine or pilocarp. to be used ev. d. to control dis.; exam. at short interv. for vis. ac. and vis. field. 3. If dis. in both eyes, most adv. eye to be op. upon at once, iv. B-94. 4. Incis. well into sclerot. with nar. cat.-knife or very brd. lance-knife; entire segm. of iris to be caref. torn or excis. from insert. 5. If pat. old and one eye free from dis. for 1 yr. or more after dis. in other eye, avoid op. on affect. eye, iv. B-95. *In syph. gl.*, inf. iridect., fol. by merc. innunct.; pilocarp., iv. B-96; antipyrin, v. A-16.

Iris, Diseases.
Iridocyclitis and Irido-choroiditis.
Purulent metastatic: Antisep. inject. sod. salicyl., ac. carbol., etc., into globe (?). *Senile:* Corneal punct., with inject. of pilocarp., iv. B-56.
Irido-dialysis.
Glasses, iv. B-55.
Iritis.
With post. synechia: Atrop. instil. and hot water, iv. B-106.
Tumors, Sarcoma.
Primary: First stage, bef. irrit., remov. by iridect. to incl. tum. in coloboma; *second*, perf. enuclea., iv. B-57.

Lachrymal Apparatus.
Blenorrhœa.
In newborn: Taper (3 or 4 to 1 Bowman), probe in duct. *In persistent lachrymation:* Perf. excis. of orbit. port. of lachry. glnd., iv. B-30.
Epiphora.
When shock from dilata., excise glnd., iv. B-30.
Foreign Body in Duct.
Remov. with forked stem, iv. B-30.
Tumors, Sarcoma.
Fowler's sol. int., iv. B-31.

AUTHORS QUOTED.

Eye, Lens, Diseases, Cataract (*continued*).
- Post-operative Panophthalmitis—Romiée, iv. B-75.
- Post-operative Treatment—Bronner, Norton, Chisolm, iv. B-75; Chisolm, iv. B-76.
  - Secondary—Rogman, iv. B-77.
  - Suction—Maklakoff, Lawrentieff, Katzaouroff, Landolt, Maklakoff, Serebrennikowa, iv. B-74.
  - Traumatic—Gunn, iv. B-61; Wuerdemann, iv. B-72.
  - Zonular—Coggin, Hosch, Leber, Huhn, iv. B-61; Chiralt, Bribosias, iv. B-72; Mendoza, Gayet, iv. B-73.
- Composition—Collins, Priestly, Smith, Deutschmann, iv. B-59.
- Dislocation, Spontaneous—Keyser, Chiralt, Gastaldo, Schweinitz, Despagnet, iv. B-71; Pomeroy, Agnew, iv. B-72.
  - Traumatic—Saunders, iv. B-62.

Lids, Diseases—
- Blepharitis—Tukala, iv. B-18.
- Blepharospasm—Valude, Giraud, iv. B-21; Lessynsky, iv. B-22.
- Chalazia—Santos Fernàndez, Chiralt, Lagrange, iv. B-22.
- Ectropion and Entropion—Schnabel, Snellen, Hots, Thompson, Gillet de Grandmont, iv. B-19; Noyes, Wylie, Hots, Roche, Valude, Landolt, iv. B-20.
- Eyelashes, Sudden Graying—De Schweinitz, Hirschberg, iv. B-22.
- Integument, Restoration—Weeks, iv. B-21.
- Phthiriasis—De Schweinitz, Winfield, Therwell, iv. B-18.
- Pigmentation—Seymour, Taylor, iv. B-18.
- Symblepharon—T. R. Pooley, Meighan, iv. B-21.
- Telangiectasis—Alt, iv. B-18.
- Trichiasis and Distichiasis—Calles, Van Millingen, iv. B-19; Wylie, Hots, Knowdine, Maklakoff, iv. B-20.
- Tumors—
  - Epithelioma—Beard, iv. B-22.
  - Horny Growth—Theobald, iv. B-22.
  - Sarcoma—Van Duyse, iv. B-23.
  - Teratoma, Congenital—Alt, iv. B-22.
- Xanthelasma—Byers, iv. B-18.

Medical Ophthalmology—Hughlings Jackson, iv A-112.
- Age and Sex, Influence—Gould, Hutchinson, iv. B-130; Ransohoff, Jeaffreson, Woods, Kollock, de Beck, Hutchinson, Hirschberg, iv. B-131.
- Albuminuria—Michaelson, iv. B-120; Lots, Adamük, Ramsay, iv. B-121.
- Aural Disease—Rampoldi, iv. B-127.
- Brain, Diseases—Swanzy, Bowman, Bull, Nothnagel, Van Merris, Hutchinson, Calderon, Rath, Saundby, Freund, Siemerling, iv. B-136; Sutphen, Browne, D'Oench, Holger Mygind, D. B. St. John, Schmidt-Rimpler, iv. B-137; Lannegrace, Bruns, Nuel and Leplat, Bernhardt, iv. B-138.
- Circulatory System, Diseases—Thoma, Buller, Eissens, iv. B-124; Bronner, Rachlmann, Lefort, Kipp, Rachlmann, Da Costa and Hershey, Gould, Hutchinson, Mayweg, Gessner, iv. B-125; Tepljaschin, Teillais, iv. B-126.

GENERAL INDEX.

Eye, lens, diseases, cataract (*continued*).
secondary......................iv. B- 77
suction ....iv. B- 74
traumatic ....iv. B-61, 72
zonular .... iv. B-61, 72
composition.......................iv. B- 59
dislocation, spontaneous....iv. B- 71
traumatic.....................iv. B- 62
lids, diseases.......................iv. B- 18
blepharitis........................iv. B- 18
blepharospasm..................iv. B- 21
chalazia...........................iv. B- 22
ectropion and entropion......iv. B- 19
eyelashes, sudden graying..iv. B- 22
integument, restoration.....iv. B- 21
phthiriasis ....iv. B- 18
pigmentation.....................iv. B- 18
symblepharon...................iv. B- 21
telangiectasis....................iv. B- 18
trichiasis and distichiasis.iv.B-19, 20
tumors—epithelioma.........iv. B- 22
horny growth................iv. B- 22
sarcoma ....iv. B- 23
teratoma, congenital.......iv. B- 22
xanthelasma.....................iv. B- 18
medical ophthalmology—age and
sex, influence.................iv. B-130
albuminuria.....................iv. B-120

THERAPEUSIS

Eye (*continued*).
Lens, Diseases.
Cataract.
Suc. cinerariæ maritimæ instill., gtt. j to ij, t.i.d., iv. B-107, v. A-38.
Cataract Extraction.
With and without iridect., C. S. Bull's meth., iv. B-62; Little's meth., Knapp's meth., Teale's meth., iv. B-63; Hewetson's "trap-door cut," Snell's meth., Berry's meth., iv. B-64; Mackinlay's meth., Frost's meth., Mule's meth., Collins's meth., Grossmann's meth., Little's meth., Wolfe's meth.. iv. B-65; Knapp's meth., Boucheron's meth., Da Gama's meth., iv. B-67; Knapp's meth., iv. B-68; Gruening's meth., Webster's meth., Panas's sol., Bull's meth., Roosa's meth., iv. B-69; Valk's "iris retractors," Ayres's meth., Roberts's meth., Bourgeois's meth., de Wecker's meth., iv. B-70; Barret's meth., iv. B-71; Thomas's meth., iv. B-72; Buller's meth., Critchett's meth., iv. B-73; Bronner's capsule-hook, iv. B-75; Steffan's meth., iv. B-75; Becker's meth., Pagenstecher's meth., iv. B-76; gran. hyoscyamin int. to dilate pupil, iv. B-107.
Cataract — Intra-ocular Lavage.
Physiolog. salt sol., boric ac. sol., boiled water, weak % of salt to boiled and frozen aq. destil., Undine irrigator, iv. B-73.
Cataract—Post-operative Hæmorrhage.
Firm bandage, if glaucom. tendency, iv. B-75; hot water, iv. B-104. Injec. into orbit of ℞ Antipyr., 1 p.; cocaine, 1-5 p.; aq., 2 p.—30 drops bef. op., iv. B-107.
Cataract–Post-operative Panophthalmitis.
Antisepsis, iv. B-75.
Cataract–Post-operative Treatment.
Bronner's hook to remove lens-capsule. Ice-bag to abort or check infl.; if suppur. of cornea, no use; rhus. tox. int.; antisep., Chisolm's meth., iv. B-76; Chisolm's meth, iv. B-77.
Cataract—Traumatic.
Disciss. of lens, button-hole pupil in false membrane, iv. B-72.
Cataract—Zonular.
Doub. iridect., Bribosias's meth., iv. B-72.
Dislocation.
Fixation, extraction, iv. B-71; extraction, iv. B-62.

Lids, Diseases.
Blepharitis.
Resorcin, v. A-116.
Ectropion.
Thompson's mod. of Hotz's op., iv. B-19; Roche's op.; if cicatricial, Ital. meth. of blepharoplasty; cutan. or dermo-epiderm. graft; facial blepharoplasty, iv. B-20.
Entropion.
Schnabel's modif. of Snellen's op.; *senile*, Gillet de Grandmont's op., iv. B-19. Noye's subcut. divis. of tars.; Wylie's op., iv. B-20.
Integument, Restoration, Upper Lid.
Weeks's transplant. of flap without pedicle, iv. B-21.

AUTHORS QUOTED.

Eye, Medical Ophthalmology (*continued*).

Diabetes—Anderson, iv. B-121; Panas, iv. B-122.

Diphtheria—Laudman, Sym, Blanch, iv. B-114.

Erysipelas—Oeller, iv. B-112.

Exophthalmic Goitre—White, iv. 128; Charcot, Bertoge, Dauscher, Lacille, iv. B-129.

Filaria—Chiralt, iv. B-129.

Gastro-intestinal Disorders—Hewetson, iv. B-127; Harper, Vanden, Bergh, Gould, Hutchinson, Eales, Nuel and Deplat, iv. B-128.

Headache and Neuralgias—Ranney, Marlow, iv. B-138; Culver, de Schweinitz, iv. B-139.

Herpes Zoster — Sattler, Dardignac, Schäffer, iv. B-112; Dupas, iv. B-113.

Leprosy—Meyer and Berger, Leber, iv. B-113; Lopez, iv. B-114.

Lungs, Chronic Disease — Comini, iv. B-128.

Lupus—Trousseau, Amiet, iv. B-118.

Malarial Diseases—Seljuck, Motais, Kipp, Thompson, Cuignet, Enrique, Lopez y Vietia, iv. B-115.

Measles—Boucher, Calmeil, iv. B-115.

Menstrual Disorders — Puech, iv. B-129.

Migraine Accompagnée—Berbes, Rampoldi, Chibret, iv. B-139; Grandclément, iv. B-140.

Nasal Disease—Trousseau, Ziem, iv. B-126; Despagnet, Rotholz, Dowling. Chiralt, de la Peña, Masini, iv. B-127.

Nervous Diseases—Berger, iv. B-131; Dillmann, Galezowski, iv. B-132; Déjerine, Benedikt, Adamük, Parinaud, Eulenberg and Mendel, Howard, Galezowski, Eulenberg and Mendel, Darier and Abadie, Kunn, Küssmaul, Wising, iv. B-133; Kalt, Sachs, Uhthoff, Heddaeus, von Hippel, iv. B-134; Kalt, Estor, Mauthner, Benzler, Westphal, Kojewnikoff, Dichhorst, Mittendorf, Howard, Cheney, Adamkiewicz, Manz, Vissering, iv. B-135; Oliver, iv. B-136.

Neuroses, Reflex—Harper, Hewetson, Gould, Webster, Gould, Wigelsworth and Bickerton, iv. B-140; Webster, Hösslin, Pechdo, Griffith, Parinaud, iv. B-141; Harlan, Binet, Marlow, Williams, Jeaffreson, Féré, Parinaud, Hösslin, Mitchell and de Schweinitz, Sciammana and Parisotti, iv. B-142.

Odontalgia — Neuschuler, Hern, iv. B-127.

Optic Aphasia—Freund, Siemerling, iv. B-136.

Rheumatism—Fulton, Darier, iv. B-119; Abadie, Drausart, Puech, Wright, Chiralt, Santos FernÀndez, Emmert, Hutchinson, Darier, iv. B-120.

GENERAL INDEX.

Eye, medical ophthalmology (*continued*).

aural disease......................iv. B-127

brain, diseases..................iv. B-137

circulatory system, diseases.iv. B-124

diabetes..........................iv. B-121

diphtheria........................iv. B-114

erysipelas........................iv. B-112

exophthalmic goitre..........iv. B-128

filaria..............................iv. B-112

gastro-intestinal disorders.iv. B-127

headache and neuralgias....iv. B-138

herpes zoster.....................iv. B-112

leprosy............................iv. B-113

lungs, chronic disease........iv. B-128

lupus..............................iv. B-118

malarial diseases..............iv. B-115

measles...........................iv. B-115

menstrual disorders...........iv. B-129

migraine accompagnée.......iv. B-139

nasal disease....................iv. B-126

nervous diseases................iv. B-131

neuroses, reflex.................iv. B-140

odontalgia........................iv. B-127

optic aphasia....................iv. B-136

rheumatism......................iv. B-119

streptococcus infection.......iv. B-119

syphilis............................iv. B-122

torticollis, spastic.............iv. B-126

toxic substances................iv. B-116

trophoneuroses, ophthalmic.iv. B-113

tuberculosis.....................iv. B-117

THERAPEUSIS.

Eye, Lids, Diseases (*continued*).

Symblepharon.
Artific. eye-shell introd. until healed; transpl. M. M. of lip. to repl. conjunctiva, iv. B-21.

Telangiectasis.
Removal; subseq. op. in orbit., iv. B-18.

Trichiasis and Distichiasis.
Calle's op., Van Millingen's "tarso-cheiloplastic op.," Wylie's op., iv. B-20.

Tumors.
Epithelioma, lower lid: Excis. of growth and orbicularis muscle, iv. B-22; transpl. of flap of pedicle from temple, iv. B-23. *Horny growth*: Removal, iv. B-22. *Sarcoma*: Removal (?), iv. B-23.

Medical Ophthalmology.

Circulatory System.
Pulsating exophthalmos: Lig. of com. carotid; lig. of int. carot., sup. thyr. ascend. pharyng., com. carot., fol. by enucleа. of globe, iv. B-124. *Arterio-venous aneurism of carotid in cavernous sinus*: Lig. of both carotids. *Double vascular exophthalmos*: Intermit. compression of r. carot., pot. iod. int. *Vitreous hæmorrhages*: Lig. carotid, iv. B-125.

Diabetes.
Antipyrin, daily dose, gr. xlv (3 grm.), iv. B-122.

Diphtheria.
Cycloplegia: Electr. curr. (galv. and farad.), concave pt. electrod. to conjunctiv. surf. of ball. *Conjunctivitis*: Antisep. irriga., detach false membr., touch muc. surf. with lemon-juice, apply helenin, iv. B-114.

Exophthalmic Goitre.
Intra-parenchym. inject. of iodof. ether: neg. electrol. needle into tumor. curr. of 6 to 10 milliamps. passed for 4 to 20 seconds, iv. B-129.

Filaria.
Merc. inunct., iv. B-112.

Gastro-intestinal Disorders.
Dyspepsia and sick-headache, glasses; *vomiting*, relief of astig. and insuff. by glasses; *flatulent dyspepsia*, correcting glasses, iv. B-128.

Headache and Neuralgias.
Grad. tenot., iv. B-138; glasses, iv. B-139.

Herpes Zoster.
Abort.: Apply 90% alc. or sol. of either resorcin 2 p., thymol 1 p., menthol 3 p., tannin 2 p. in 100 parts of alc. (90%); sat. comp., bind on; cover with mackintosh; renew freq., iv. B-113.

Leprosy.
Chalmoogra-oil, iv. B-113; isola. and protect.; cauteriza. of tubercles; antisep., cleanliness, and loc. treat., iv. B-114.

Malarial Diseases.
Plastic iritis, quin.; *corneal and purulent conjunctivitis*, quin., large doses. *Serpiginous ulcers of cornea*, quin.; sol. arg. nitr. 1% to 2% loc. to furrows; act. caut. in severe cases. *Mono-lateral ocular paralysis*, mixd. treat., iv. B-115.

AUTHORS QUOTED.

Eye, Medical Ophthalmology (*continued*).

Streptococcus Infection—Behr and Garnier, Hanford, iv. B-119.

Syphilis—Alexander, J. Hutchinson, Jr., iv. B-122; Horstmann, Hirschberg, Parisotti, Hirschberg, Trousseau, Seggel, iv. B-123.

Torticollis, Spastic—Wadsworth, iv. B-126.

Toxic Substances—Gunsberg, Hutchinson, Nuel and Leplat. Becker, iv. B-116; Mittendorf, Edmunds and Lawford, Panas, Dubois, Staderini and Addario, iv. B-117.

Trophoneuroses, Ophthalmic—Mules, iv. 113.

Tuberculosis—Wagenmann, iv. B-117; Amiet, Hirschberg, Trousseau, Valude, Schöbl, iv. B-118; Neese, Ducamp, Deutschmann, Nettleship, iv. B-119.

Optic Nerve, Diseases—

Atrophy, Congenital—Schirmer, iv. B-89.

Treatment—Bull, iv. B-90.

Tumors—

Glioma—Buffon, iv. B-90.

Grape-like Growth—Nieden, Müller and Leber, iv. B-89.

Sarcoma—Sym, Buffun, iv, B-89.

Orbit, Diseases—

Aneurism—Benson, iv. B-23.

Caries and Necrosis—Knapp, iv. B-29.

Cellulitis and Abscess—Lawford, C. S. Bull, Wilson, iv. B-29.

Enophthalmos—Lang, Gessen, iv. B-24.

Exophthalmos—Maklakoff, Sapeschko, iv. B-24; Hirschberg, Bronner, iv. B-23.

Exostoses—Jamain, Lee, iv. B-28.

Foreign Bodies—Swan, H. Wood, Marsh, Noyes, iv. B-23.

Hæmorrhage—Gifford, iv. B-24.

Tumors—Jeaffreson, Reid, Buckner, iv. B-25; Rushmore, Alleman, W. J. O'Harle. Rockliffe, Ahrens, Emrys-Jones, Weeks, iv. B-26; Reed and Harrison, Barrenechea, Ayres, Reid, Alt, iv. B-27; Wiesner, iv. B-28; C. S. Bull, iv. B-29.

Physiology—

Color-sense, Tests—Barrett, Bickerton, Annual, 1889, Edridge-Green, iv. B-16; Holmgren, Young-Helmholtz, Hering, Wuerdemann, Edridge-Green, iv. B-17; Fraenkel, iv. B-107.

Congenital Cataract, Development of Perception in—Fischer, Cheselden, Ware, Home, Franz, iv. B-14.

Muscæ—Barrett, iv. B-18.

GENERAL INDEX.

Eye, optic nerve, diseases..........iv. B- 89

atrophy, congenital..........iv. B- 89

treatment..........iv. B- 90

tumors—glioma..........iv. B- 90

grape-like growth..........iv. B- 89

sarcoma..........iv. B- 89

orbit, diseases..........iv. B- 23

aneurism..........iv. B- 23

caries and necrosis..........iv. B- 29

cellulitis and abscess..........iv. B- 29

enophthalmos..........iv. B- 24

exophthalmos..........iv. B- 23

exostoses..........iv. B- 28

foreign bodies..........iv. B- 23

hæmorrhage..........iv. B- 24

tumors..........iv. B- 25

physiology — color-sense, tests iv.B-16, 107

congenital cataract, development of perception in.....iv. B- 14

muscæ..........iv. B- 18

muscular insufficiency, test—"Parallax test"..........iv. B- 11

ocular fundus, examination.iv. B- 14

ophthalmo-dynamometer, Alleman's..........iv. B- 11

ophthalmometer, Leroy's...iv. B- 11

pupillary reaction..........iv. B- 12

retina, peripheral light perception..........iv. B- 15

retinal impressions, intermittent..........iv. B- 14

test-types, Landolt's..........iv. B- 16

visual angle, differences in.iv. B- 11

visual sensations, subjective iv.B- 15

refraction and accommodation iv. B-143

accommodation and convergence, Randall's model...iv. B-146

accommodation, unequal.....iv. B-143

bogenstreif—curvilinear reflection..........iv. B-145

children..........iv. B-143

hyperopia of..........iv. B-145

lenses, bifocal, Gould's.......iv. B-146

cylindrical..........iv. B-145

toric or periscopic..........iv. B-146

metamorphopsia, binocular.iv. B-144

mydriatics..........iv. B-144

myopia and astigmatism....iv. B-144

and size of orbit..........iv. B-144

hereditary..........iv. B-144

symptomatic..........iv. B-144

nomenclature..........iv. B-145

optometer, Starr's..........iv. B-146

prisms..........iv. B-145

THERAPEUSIS.

Eye, Medical Ophthalmology (*continued*).

Migraine Accompagnée.
Antipyrin, gr. xlv (3 grm.), daily, iv. B-139; antipyr. hypod., iv. B-140.

Nasal Disease.
Treat. prim. nasal dis., iv. B-126.

Nervous Diseases.
Tabes, suspension (?), iv. B-133.

Neuroses.
Correction of astig. and hyperopic errors, iv. B-140; *epilepsy with irritable globe*, enuclea., iv. B-141; *hysterical blindness*, shock (mydriasis, by atrop.), etheriza., iv. B-142.

Odontalgia.
Prisms; *sclero-keratitis*, extraction of carious tooth, iv. B-127.

Rheumatism.
Colchicine granules. gr. 1-32 (0.002 grm.), incr. to gr. 1-12 0.006 grm.), iv. B-119; *sclerotic infl. troubles*, sod. salicyl., with or without quin., iv. B-120.

Syphilis.
Calomel, hypod.; antisyph. treat., iv. B-123.

Torticollis, Spastic.
With faulty position of eyes, tenot. l. sup. rect. tendon, iv. B-126.

Toxic Substances.
Amblyopia from carbon-bisulphide, rest, tonics (iodide, iron, strychn.), iv. B-116; *central scotoma from chloral*, chloral stopped, strychnia given, iv. B-117.

Tuberculosis.
Subl. irriga.; iodof. insuffla.; excis.; repeated thermo-cauteriza., iv., B-118; *with tuberc. meningitis*, electric., potass. iod., iv. B-119.

Optic Nerve, Diseases.
Traumatic anæsthesia without lesion: Galvan. appl. to closed lids, curr. through eye-ball, iv. B-90. *Glioma, glio-sarcoma, sarcoma:* Enucleation of eye-ball, nerve severed close to foramen, iv. B-89.

Orbit, Diseases.

Aneurism.
Traumatic: Contin. digital compression, iv. B-23.

Caries and Necrosis.
Open foci of suppura., cleanse cav., draw (silver tubes, flanged); scrape bone, remove necrosed port. as detached, exam. neighbor. cavities, iv. B-29.

Cellulitis and Abscess.
Free incis., irriga. 2 t. d., through rubber drain.-tube, iv. B-29.

Exophthalmos.
With dilation of frontal sinus, free incis. into orbit gave pus; drain., trephined skull over sinus; perman. commun. betw. cavity and nasal labyrinth, iv. B-24.

Exostoses.
Extirpa., with lever and forceps, iv. B-28.

Foreign Bodies.
Enlarge conjunctiv. wnd. to admit little finger as explorer, iv. B-23.

AUTHORS QUOTED.

Eye, Physiology (*continued*).

Muscular Insufficiency, Test—Duane, iv. B-11.

Ocular Fundus, Examination—Bellarminoff, Prevost, Wharton Jones, iv. B-14.

Ophthalmo-dynamometer—Alleman, iv. B-11.

Ophthalmometer — Leroy, Leroy and Dubois, iv. B-11.

Pupillary Reaction—Heddaeus, iv. B-12; Moebius, Annual, 1889, iv. B-14.

Retina, Peripheral Light Perception—Treitel, iv. B-15.

Retinal Impressions, Intermittent—Bellarminoff, Maklakoff, iv. B-14.

Test-types, Landolt's—Landolt, Snellen, iv. B-16.

Visual Angle, Differences in—Rogier, iv. B-11.

Visual Sensations, Subjective—Tuke, iv. B-15.

Refraction and Accommodation—

Accommodation and Convergence, Model—Randall, iv. B-146.

Accommodation, Unequal—Hess, Frick, iv. B-143.

Bogenstreif—Curvilinear Reflection—Randall, Weiss, iv. B-145.

Children—Straub, Feilchenfeld, Smith, Maddoxe, J. W. Sargent, Maklakoff, iv. B-143.

Hyperopia of — Macnamara, Donders, iv. B-146.

Lenses, Bifocal—Gould, iv. B-146.
Cylindrical—Burnett, iv. B-145; C. F. Prentice, iv. B-146.

Toric or Periscopic—Javal, iv. B-146.

Metamorphopsia, Binocular — Lippincott, Culbertson, Savage, iv. B-144.

Mydriatics—Cotter, Theobald, iv. B-144; Maklakoff, iv. B-143.

Myopia and Astigmatism — Chauvel, Martin, iv. B-144; Nienimin, Schneller, iv. B-145.

and Size of Orbit—Schmidt-Rimpler, Stilling, Baer, Cohen, iv. B-144.

Hereditary—Motais, iv. B-144, 145.

Symptomatic—Mittendorf, iv. B-144.

Nomenclature—Kesler, Van Rijnberk, iv. B-145.

Optometer, Starr's—Starr, iv. B-146.

Prisms—Maddox, iv. B-145.

Record-chart—Whitney, iv. B-146.

Statistics—Jackson, iv. B-143; Motais, Schmidt-Rimpler, Cohen, iv. B-144.

Test-apparatus—Landolt, iv. B-145.

Test-types—Abbott, iv. B-143.

Trial-frames—Chibret, iv. B-146.

Retina, Diseases—

Abscess—Schiess-Gemuseus, iv. B-86.

Amblyopia, Congenital—Naumow, iv. B-83.

Arteritis Specifica—Magnus, iv. B-88.

Cysticercus—Stölting, iv. B-85.

Detachment — Alt, Fischer, Gelpke, Schoeler, iv. B-83; Galezowski, D'Oench, Valk, Hotz, Schweigger, iv. B-84.

Glioma—Ayres, iv. B-86.

Pigmentary Degeneration — Hirschberg, iv. B-83.

GENERAL INDEX.

Eye, refraction and accommodation (*continued*).
  record-chart, Whitney's......iv. B-146
  statistics......iv. B-143
  test-apparatus, Landolt's...iv. B-145
  test-types, Abbott's......iv. B-143
  trial-frame, Chibret's......iv. B-146
retina, diseases......iv. B-83
  abscess in hyperplastic retina......iv. B-86
  amblyopia, congenital......iv. B-83
  arteritis specifica......iv. B-88
  cysticercus......iv. B-85
  detachment......iv. B-83
  glioma in infant......iv. B-8
  pigmentary degeneration....iv. B-83
  retinitis pigmentosa......iv. B-83
    purulent, primary......iv. B-86
  retino-choroiditis......iv. B-86
  senile degeneration......iv. B-84
sclerotic, diseases......iv. B-50
  scleritis, acute......iv. B-50
  sclero-ophthalmia......iv. B-50
therapeutics......iv. B-104
  antisepsis......iv. B-104, 108
  cataract......iv. B-107
  chloroform and coal-gas......iv. B-104
  color-blindness......iv. B-107
  conjunctival diseases...iv. B-105, 106
  corneal disease......iv. B-105
  éphédrine — pseudo-éphédrine iv. B-104
  epistaxis from mydriatics...iv. B-105
  hot water in hæmorrhage...iv. B-104
  iritic disease......iv. B-106
  ointments — collapsible tubes iv. B-108
  ophthalmias......iv. B-105
  routine prescribing......iv. B-108
  sclerotic disease......iv. B-107
  violet end of spectrum, effect on vision......iv. B-107
unclassified matter......iv. B-111
  ante-mortem eye, appearance iv. B-112
  blindness, census classification iv.-B-111
    preventable, diminution..iv. B-112
  grant-earning system in schools......iv. B-111
  simulated defective vision, detection......iv. B-111
vitreous, diseases of the......iv. B-78
  foreign bodies......iv. B-78
  vascular growths......iv. B-79
wounds, injuries, and foreign bodies......iv. B-97

THERAPEUSIS.

Eye, Orbit, Diseases (*continued*).

Tumors.
Dermoid cyst: Innunct. ungt. plumbi iod., iv. B-26. *Sarcoma:* Removal by op., iv. B-27; enuclea. of globe, iv. B-28.

Refraction and Accommodation.

Myopia, Ametropia.
Strong mydriat. and full correct.; oleate of veratria (10%) to forehead daily for 3 or 4 d. prev. to exam., for mydriasis, iv. B-144; éphédrine, pseudo-éphédrine (10% to 12% sol.), iv. B-104.

Retina, Diseases.

Cysticercus, Encapsulated.
Incis. with knife and scissors; traction with iris-forceps, iv. B-86.

Detachment.
Mercuric salts in walking cases, and in syph. aff. of uveal tract; Schoeler's meth., iv. B-83; Galezowski's catgut meth.; spontaneous cure, iv. B-84.

Sclerotic, Diseases.

Episcleritis.
Eserine, iv. B-107.

Sclero-iritis.
Colchicine, gr. 1-64 (0.001 grm.), 2 to 4 t. d., v. A-45.

Vitreous, Diseases.

Foreign Bodies—Iron Fragments.
Magnet. extraction, except when extens. wnd. will cause complete atrophy of ball, where the irido-choroiditis is so far adv. that result will be an irrit. and dangerous stump: incis. into sclerot. to facil. magn. extract., iv. B-78.

Wounds, Injuries, and Foreign Bodies.

Ciliary Wounds.
Enuclea. preferred to evisceration, iv. B-99.

Croton-oil Inflammation of Lids.
Sol. of atrop. and ol. ricin.; bandage, iv. B-98.

Foreign Bodies.
1. If eye destroyed, remove it. 2. If not hopelessly destr., retain it; if F. B. pres., search for it, provid. remov. is probable without increased damage to eye. 3. In remov. F. B. attached to or imbedded in the iris, adm. chlorof. freely. 4. F. B. in lens, not involv. other struct., should not be remov. too early; allow whole lens to soften and liquefy, iv. B-98; electro-magnet, with or without scleral cut, iv. B-99, 100.

Panophthalmitis.
Enucleation, iv. B-99; discard compress-band. to lids, drain wound, iv. B-100; ablat. of affect. port.; inject sol. hydrarg. oxycyanide into stump, iv. B-101.

Pyogenic Focus in Cataract Scar, at Sclero-corn. Junct.
Removed, iv. B-102.

Railroad Injuries.
Gen. treat. of open wnds.; remove traum. cataracts, iv. B-98.

Sun-blindness.
Dark room; later, dark glasses, iv. B-97.

AUTHORS QUOTED.

Eye, Retina, Diseases (*continued*).
  Retinitis Pigmentosa—Reid, iv. B-83.
    Purulent, Primary—Schoebl, iv. B-86.
  Retino-choroiditis—Hutchinson, Jr., iv. B-86.
  Senile Degeneration—Hirschberg, iv. B-84.
Sclerotic, Diseases—
  Scleritis, Acute—Powell, iv. B-50.
  Sclero-ophthalmia — Maklakoff, Sergnieff, iv. B-50.
Therapeutics—
  Antisepsis—Herbert Harlan, iv. B-104; Bronner, iv. B-108.
  Cataract—Panas, Dor, Bouchardat, Charmi, Hesse, Magnus, Kollinsky, anon., Gabaldon, Dabney, Chibret, iv. B-107.
  Chloroform and Coal-gas — Eversbusch, iv. B-104.
  Color-blindness—Fraenkel, iv. B-107.
  Conjunctival Disease—H. A. Allbutt, iv. B-105; Delagénière, Tsalio, Mittendorf, iv. B-106.
  Corneal Disease—Illingworth, Alt, iv. B-105; S. Mitchell, Jr., Dejace, Harrison, anon., de Schweinitz, Pfalz, iv. B-106.
  Ephédrine—De Vriesse, iv. B-104.
  Epistaxis from Mydriatics—Reich, W. J. Tyson, iv. B-105.
  Hot Water in Hæmorrhage—Minney, Connor, iv. B-104.
  Iritic Disease—Chas. E. Michel, iv. B-106.
  Ointments—Collapsible Tubes—Anderton, Oliver, iv. B-108.
  Ophthalmias—Heyl, T. S. K. Morton, iv. B-105.
  Routine Prescribing—R. L. Thompson, iv. B-108.
  Sclerotic Disease—S. Mitchell, iv. B-107.
  Violet End of Spectrum—Lindsay Johnson, iv. B-107.
Unclassified Matter—
  Ante-mortem Eye—Mason, iv. B-102.
  Blindness, Census Classification—Tilley, Magnus, iv. B-111.
    Preventable, Diminution—Derby, iv. B-112.
  Grant-earning System—Brit. Med. Jour., iv. B-111.
  Simulated Defective Vision, Detection—Maklakoff, Beloff, Snellen, Rosanoff, iv. B-111.
Vitreous, Diseases of the—
  Foreign Bodies—Hotz, Trompetter, McKeown, iv. B-78.
  Vascular Growths—Hirschberg, George C. Harlan, iv. B-79.
Wounds, Injuries, and Foreign Bodies—Talko, Magawly, Ramsay, Lubiasky, iv. B-97; Maklakoff, Webster, Fulton, Jeaffreson, iv. B-98; Snell, Jeaffreson, Briggs, Menacho, Chiralt, Calderon, Phillips, Noyes, iv. B-99; O. F. Wadsworth, Andrews, Jackson, Claiborne, Mules, iv. B-100; Chibret, Wagenmann, Leber, Meyer, Schmidt-Rimpler, Keyser, Schoebl, iv. B-101; Hirschberg, Bahr and Garnier, Leber and Wagenmann, iv. B-102; Prince, Ludwig, G. Calderon, Chiralt, Chisolm, Hershing, Moses, iv. B-103.

GENERAL INDEX.

Facial hemiatrophy........ii. C. 29
  and hemianæsthesia........ii. C- 31

Facial paralysis, in newborn........ii. L- 4

Facial surgery........iii. J- 14

Fæcal fistula, resection of transverse colon for........iii. C- 31

Fallopian tubes, diseases........ii. G- 13
  hæmatosalpinx from atresia vaginæ........ii. G- 23
  open Fallopian tubes........ii. G- 24
  salpingitis........ii. G- 13
    catarrhal........ii. G- 14
    diagnosis........ii. G- 16
    isthmica nodosa........ii. G- 16
    purulent........ii. G- 15
    treatment........ii. G- 17
      abdominal section........ii. G- 19
      electricity........ii. G- 22
      massage........ii. G- 21
      salpingostomy........ii. G- 20
    tubercular........ii. G- 16

Fat-cells of the frog, histology........v. H- 3

Favus, in newborn........ii. L- 20
  treatment........iv. A- 54

Feet, fetid sweating........iv. A-49, 55

Ferrum, therapeutic uses........v. A- 53

Fertility........ii. I- 2

Fever—pathology, general........i. H- 1
  prophylaxis, general........i. H- 3
  treatment, general........i. H- 8
    antipyretic medication........i. H- 8
    cold baths, in hyperpyrexia of infants........i. H- 10
    spraying to reduce temperature........i. H- 8

THERAPEUSIS.

Fæcal Fistula.
Resection of intestines (enterectomy), iii. C-31; Chinese twisted-silk sut.; round needles; Czerny - Lembert sut., iii. C-32.

Fallopian Tubes, Diseases.
Hæmatosalpinx from Atresia Vaginæ.
Leopold's op., laparot., removal of ovaries. If blood in vag., small cuts in occlud. membr. and drain. by glass tube: avoid inject. If absence of vag., make artific. vag., opening closed ut. with broad incis. or trocar; keep open; if imposs., laparotomy; abdom. and rectal puncture; empty ut. bef. perf. laparot.; if tubes do not become smaller after evac. ut., open abd.; also if sac disapp. suddenly, ii. G-24.
Open Fallopian Tubes.
Hot vag. douches, replace and support ut., catheterize tubes ev. wk.: *avoid* intra-ut. inject., ii. G-25.
Salpingitis, Catarrhal.
In ac. stage, absol. rest in bed, very hot vag. inject. or ice to stomach; morph., chloral, bromide or antipyr., ii. G-17. *In chr. stage*, dilate uterus, curette cavity, drain; next menstrual period after treat. to be passed in bed: treat any chr. infl. of ut. or stenosis, ii. G-18.
Purulent.
Abdom. section, drainage; empty abscess if poss. by vag. incis., wash out cav., inject with iod.; vaginal aspira. and inject. of iod. for 1 to 10 d., ii. G-19. Vag. punct., treat as ordin. pelvic abscess (?); salpingostomy; abdominal incis., ii. G-20. Massage, Thure-Brandt's meth., ii. G-21; electricity, Apostoli's meth., ii. G-22.
Tubercular.
Abdominal section (?), ii. G-17.

Favus.
Cut hair short, soften scabs with oil and remove, wash head with soap, then apply sulphurous-acid gas loc. by means of Schuster's appar., iv. A-54; galv. curr. 15 to 20 milliamp. for 10 to 20 min. with sublim. sol. (1–1000 to 1–500) to moisten sponges; used daily, iv. A-57.
in Newborn.
Remove patches; soap-lotions; ungt. hydrarg. ammoniat., ii. L-20.

Feet, Fetid Sweating.
Sol. ac. chromic. (5 %) appl. with brush to prev. washed and dried feet, iv. A-49. ℞ Pulv. talc., ʒx (38.8 grm.); bism. subnit., ʒxj (42.7 grm.); pot. permang., ʒiij ℈j (13 grm.); sod. salicyl., ʒss (0.26 grm.)—M. S.: Sprinkle inside soles of stockings, wash feet m. and n., and then rub with alcoh. Bathe feet at n. in water, to which is added vinegar, mustard, or spts. camph.; then rub in: ℞ Ichthyol., terebinthin., āā ʒij (7.80 grm.): ungt. zinc. ox., ʒij (7.80 grm.)—M.: also during day dust in stockings: ℞ Pulv. sinapis, gr. xv (0.97 grm.); pulv. talc., ℥j (31 grm.)—M., iv. A-55. Chromic acid sol. (5 %) locally, ev. 2 to 4 wks., v. A-37.

AUTHORS QUOTED.

Facial Hemiatrophy—Virchow, ii. C-29; Mendel, Virchow, ii. C-30; Ruheman, Bramwell, ii. C-31; Rosenthal, Kalt, Bechterew, Ephraim, ii. C-32.

Facial Paralysis—
  in Newborn—Gower, Stephan, ii. L-4; Henoch, Jolly, ii. L-5.

Fæcal Fistula—Rubio, Cotterill, iii. C-31.

Fallopian Tubes, Diseases—
  Hæmatosalpinx from Atresia Vaginæ—Leopold, ii. G-23; Fuld, Kaltenbach, Hausmann, Brown, Schroeder, Breisky, ii. G-24.
  Open Fallopian Tubes—Wallace, ii. G-24.
  Salpingitis—Mignon, ii. G-13.
    Catarrhal—Cushing, ii. G-14.
    Diagnosis—Winauer, Thure, Brandt, ii. G-16.
    Isthmica Nodosa—Schauta, ii. G-16.
    Purulent—Hall, Cullingworth, Schmitt, ii. G-15.
    Treatment—Mangin, ii. G-17; Doléris, ii. G-18.
      Abdominal Section—Boldt, Gusserow, Sinclair, Routh, T. More-Madden, ii. G-19; Rochet, Daroyenne, anon., ii. G-20.
      Electricity—Apostoli, ii. G-22.
      Massage—Boldt, Thure-Brandt, Theilhaber, ii. G-21.
      Salpingostomy—Skutsch, London Med. Recorder, ii. G-20.
    Tubercular — Griffiths, Greig Smith, Werth, Hegar, ii. G-17.

Fat-cells of the Frog, Histology—W. C. Borden, v. H-3.

Favus—
  in Newborn—Desmet, ii. L-20.
  Treatment—Schuster, iv. A-54.

Feet, Fetid Sweating—Anon., iv. A-49; Bardet, Unna, iv. A-55.

Ferrum, Therapeutic Uses—John A. Ouchterlony, Boy-Tessier, W. W. Jaggard, anon., Jolly, Ch. Lecert, v. A-53.

Fertility—Bland, ii. I-2; Chaleix, Westervelt, Buchanan, Pereira da Cruz, Somerville, E. C. Anderson, Steffeck, Pinard, ii. I-4; Berlin, E. W. Mulligan, W. B. Cauble, Porak, ii. I-4.

Fever—
  Pathology, General—Ott, Annual, 1889, i. H-1; Dochmann, Roussy, i. H-2; Hanau, i. H-3.
  Prophylaxis, General — Welch, i. H-3; Prudden, Welch, i. H-4; Welch, i. H-5; Prudden, Foote, i. H-6; Sehrwald, Charrin and Ruffer, i. H-7.
  Treatment, General—
    Antipyretic Medication—Joseph Jones, Huet, Pel, i. H-8; Rosenstein, Crombie, i. H-9; Penzoldt, i. H-10.
    Cold Baths, in Infant—Adie, i. H-10.
    Spraying to Reduce Temperature — Placzek, Preyer and Flasher, Hiller, i. H-8.

GENERAL INDEX.

Fevers—new, unknown, or unrecognized ....i. H- 81
  eruptive, new ....i. H- 81
  glandular ....i. H- 85
  Kansas City (at) ....i. H- 83
  malignant, of Brazil ....i. H- 81
  on emigrant ship ....i. H- 84
  pleuro-pneumonic ....i. H. 85

Filix mas, therapeutic uses ....v. A. 53

Fish, hygiene of ....v. F- 20
  fish poisoning ....v. F- 20
  fish preservation ....v. F- 20
  red coloration in salt fish ....v. F- 20

Fistula in ano, pathology ....iii. D- 31
  treatment ....iii. D- 13

Fistulæ ....ii. H- 30
  intestino-vaginal ....ii. H- 31
  intestino-vesical ....ii. H- 32
  urethro-vaginal ....ii. H- 31
  vesico-vaginal ....ii. H- 30

Flat-foot, pathology and treatment iii. F- 59

Food, as nutrient media for bacteria iv. L- 40

Foods, hygiene of ....v. F- 21
  adulteration ....v. F- 21
  and leprosy ....v. F- 22
  preserved ....v. F- 22
  tinned ....v. F- 22
  tuberculous ....v. F- 19

Formic acid—arrow-poison ....v. A- 54

THERAPEUSIS.

Fevers.

In General.
Cold-water spraying, antipyrin, [gr. v to xxx (0.33 to 2 grm.)], acetanilid [gr. ij to xv (0.12 to 1 grm.)], phenacetin [gr. v to x (0.33 to 0.66 grm.)], salol [gr. v to xxx (0.33 to 2 grm.)], saccharin [gr. ¼ to ij (0.015 to 0.12 grm.)], quinine [gr. v to xxx (0.33 to 2 grm.)], i. H-9; ac. salicylic. [gr. v to xv (0.33 to 3 grm.)], cold sponging and bathing, i. H-9; cold baths, 89° F. (31.66° C.), fol. by dry rub and frict. over whole body with lin. camph. co.; if too great fall, give stim., with ext. heat, i. H-10. Acetanilid, v. A-3; antipyrin, v. A-13; exalgin, v. A-93; pyrodin, gr. 1-12 to ½ (0.005 to 0.03 grm.), v. A-111, 112; phenacethydrazin, gr. xlv (3 grm.), daily, v. A-112; thermifugine, v. A-136.

New, Unknown, or Unrecognized.

Glandular.
Oleag. inunct.; wrap throat in cott.; rest in bed, i. H-85.

Kansas City (at).
Genl. antifeb. treat., i. H-84.

Prophylaxis.
Prevent the desicca., when exposed to the air, of subst. contain. infect. germs not destr. by drying; free ventila.; public disinfect. establ. in cities for bedding, etc., i. H-4. Keep infect. subst. from the ground; drainage; clean, sprinkled streets, i. H-5. Sterilised water and milk, i. H-6; sterilisa. of fæces; subl. and hydrochlor. ac., pot. permang., chlor. lime, stirred in fæces; naphthalin and calomel int., i. H-7.

Fistula in Ano.
Kelsey's op., iii. D-13; I. E. Taylor's op., iii. D-19; terebene, v. A-135.

Fistulæ.

Intestino-vaginal.
Dupuytren enterotome placed on the spur; removed on 6th d. fol. by plastic op.; edges of vag. first denuded and sutured, ii. H-32.

Urethro-vaginal.
Dissect across orif. of fist. a fold of M. M. from int. port. of ant. wall of urethra and neck of blad., and suture it to post. wall of urethra; Polaillon's op., ii. H-31.

Vesico-vaginal.
Israel's op. for incontinence after closing fistula: suprapubic incis. into blad., perman. closure of urethra; urine drawn with cath. ev. 6 hrs. through supra-pubic opening, ii. H-30; thick, hard pillow under up. pt. of thighs; Chacon's vesical elevator; secondary union by cauteriz. fist. and scraping granulations, ii. H-31.

Flat-foot.
Osteotomy of tib. and fib. just above maleoli; remodeling foot by silicate bandages, iii. F-59; removal of astragalo-scaphoid joint and pegging of the bones together; excection of scaphoid alone, iii. F-60; tarsotomy, scaph. alone or with head of astrag. (Golding-Bird's op.); Barwell's elastic-spring dressing, iii. F-61.

AUTHORS QUOTED.

Fevers—J. C. Wilson, Solomon Solis-Cohen, i. H-1.

New, Unknown, or Unrecognized—

Eruptive, New—Robert Coltman, Jr., i. H-81.

Glandular—Pfeiffer, Huebner, i. H-85.

Kansas City, at—Lanphear, i. H-83.

Malignant, of Brazil—Toppin, i. H-81; Fairbairn, Toppin, i. H-83.

on Emigrant Ship—Kraft, i. H-84.

Pleuro-pneumonic — Ballard, i. H-85; Szontagh, i. H-85.

Filix Mas, Therapeutic Uses—J. O. de Man, Alkiewics, v. A-53.

Fish, Hygiene of—

Fish Poisoning—J. Lawrence Hamilton, v. F-20.

Fish Preservation—J. Lawrence Hamilton, v F-20.

Red Coloration in Salt Fish—Alexander Edington, v. F-20.

Fistula in Ano, Pathology—Schuchardt, Volkmann, iii. D-31.

Treatment—Kelsey, iii. D-13; Goodsall, iii. D-16; Kennedy, I. E. Taylor, iii. D-19; H. M. Lewis, iii. D-24; Esmarch, iii. D-25.

Fistulæ—

Intestino-vaginal—R. A. Vance, ii. H-31.

Intestino-vesical—C. P. Noble, ii. H-32.

Urethro-vaginal—Polaillon, ii. H-31.

Vesico-vaginal—Boldt, A. P. Dudley, K. Israel, Heustis, Sims, ii. H-30; Chacon, Ernest, Hart, Verneuil, ii. H-31.

Flat-foot, Pathology and Treatment — Trendelenberg, Hahn, Julius Wolff, iii. F-59; Richard Davy Golding-Bird, Thomas Bryant, Ogston, iii. F-60; Golding-Bird, Barwell, iii. F-60.

Food, as Nutrient Media for Bacteria—Hesse, iv. L-40.

Foods, Hygiene of—

Adulteration—Charles W. Drew, v. F-21.

and Leprosy—N. S. Durrant, v. F-22.

Preserved—Poincaré and Macé, v. F-22.

Tinned — Capt. Segrave, Fallon, Percy, Wightwick, M. B. Dur, v. F-22.

Tuberculous—Arloing, P. de Pietra Santa, v. F-19.

Formic Acid — Arrow-poison — Stanley, v. A-54.

Fractures, Astragalus—Broca, iii. H-5.

Femur, Neck—Senn, iii. H-3.

Fibula, Paralysis from Callus — Marchant, iii. H-5.

Patella—H. O. Thomas, iii. H-3; Massing, Ceci, Myles, Mayo Robson, Stimson, iii. H-4.

Radius, Ununited—McGill, iii. H-2.

Ribs—Jas. Cantlie, F. A. Neal, H. M. Barth, Bird, iii. H-2.

Spine, Paralysis following—J. E. Mears, J. Duncan, H. Allingham, Dawbarn, Dandridge, iii. H-1.

GENERAL INDEX.

Fractures, astragalus.................iii. H- 5
femur, neck.......................iii. H- 3
fibula, paralysis from callus..iii. H- 5
patella..............................iii. H- 3
radius, ununited..................iii. H- 2
ribs...................................iii. H- 2
spine, paralysis following iii. A-29, iii. H- 1
tibia, avulsion of tuberosity...iii. H- 5

Fractures and dislocations ....iii. H- 1

Frambœsia (Pian).......................iv. A- 47

France, vital statistics..................v. E- 4

Friedreich's disease.....................ii. B- 34

Frontal sinus, diseases...............iv. D- 34
abscess.................................iv. D- 34
cysts.....................................iv. D- 36
ectasia..................................iv. D- 35
inflammation of......................iv. D- 35
maggots in.............................iv. D- 36

Furuncle of ear..........................iii. K- 9

Gall-bladder, surgical diseases....iii. C- 46
biliary calculus................iii. C-40, 46
cholecystectomy................iii. C- 46
cholecystotomy ....iii. C-40, 46
cholelithotrity...................iii. C- 47
stenosis ductus choledochus...iii. C- 48
cholecystenterotomy..........iii. C- 48

Gall-stones ....i. C- 40

Galvanism, depressing effects ....v. C- 2
in vegetable parasitic skin diseases.......................... ...iv. A- 57

Gangrene, spreading emphysematous..............................iii. O- 22

Gastro-enterostomy....................iii. C- 25

Gastrostomy..........................iii. C- 11, 14
and enterotomy....................iii. C- 17

Gauze, adherent.......................iii. Q- 9
creolin..................................iii. Q- 9
dry.......................................iii. Q- 5
iodoform ....iii. Q- 8
sublimate...............................iii. Q- 10

Gelsemium, therapeutic uses ....v. A- 54

Genitals, pelvic pain in female due to malformed.......................ii. G- 47

THERAPEUSIS.

Fracture.
Femur, Neck.
Senn's plaster-of-Paris dressing on both lower limbs and trunk, with direct press. on trochan., iii. H-3.
Patella.
Indirect fixation of knee, iii. H-3; fixation of up. fragment; subcutan. wiring; drilling and pins, iii. H-4; subcutan. silk suture, iii. H-5.
Radius, Ununited.
Bone-grafts, iii. H-2.
Spine, Paralysis following. Exsect. of spinous proc. and laminæ; manipula. and plaster jacket, iii. H-1. Hammock-suspension and plast. jacket, iii. H-2, A. 29.
Tibia, Avulsion of Tuberosity.
Fixation by nail, iii. H-5.
Frambœsia (Pian).
Cleanliness; merc. and iod. intern., with ungt. hg. loc.; lot. ac. carbol. loc. for disinfect., iv. A-48.
Frontal Sinus, Diseases.
Abscess.
Incis. and drainage, iv. D-34.
Cysts.
Exsection of cyst, iv. D-36.
Inflammation.
Cocaine, morphia, atropin, sol. appl. to M. M.; sol. cocaine (5%) appl. to mouth of infundib. (middle meatus) relieves headache due to closure of this canal, iv. D-35.
Furuncle.
Sol. ac. carbol. (2% to 3%), 4 inject. into centre of boil, v. A-28.
of Ear.
Abortive sat. sol. ac. boric. in alcohol. absol. after incis., iii. K-9; pulv. ac. boric. loc., v. A-24.

Gall-bladder.
Biliary Calculus.
Cholecystotomy, i. C-40; ol. olivæ, large doses ℥iv to vj (124 to 187 grm.); add ½% of menthol, 10% to 15% cognac, vitelli ovi no. ij to each dose; take in 6 to 8 portions within 2 or 3 hours; then wash mouth with vineg. and wat. and take hot, strong coffee; massage, i. C-41. "Pumping the liver," i. C-42; cholecystotomy, cholecystectomy, iii. C-46; cholelithotrity, iii. C-47.

Stenosis, Ductus Choledochus.
Cholecystenterotomy, iii. C-48.

Glottis, Œdema.
Intubation, iv. G-7.

Goitre.
Slow neg. electrol., v. C-12, iv. H-4; inject. tinct.-iodi., iv. H-3; inject. iodof. ether; inject. ferri. perchlor.; ergotin., iv. H-5; puncture and evac., iv. H-6.

Hydatid Cysts.
Puncture and inject. of parasiticides: incision, enucleation, iv. H-6.

AUTHORS QUOTED.

Fractures (*continued*).
Tibia, Avulsion of Tuberosity—Landsberg, iii. H-5.

Fractures and Dislocations — Lewis A. Stimson, iii. H-1.

Frambœsia (Pian)—Lacaze, iv. A-47; Ravel, Lacaze, Kaposi, iv. A-48.

France—
Vital Statistics — De Pietra Santa, E. Levasseur, H. Mireur, Jules Rochard, v. E-5; Arthur Chervin, Rochart, v. E-6; Chervin, Bertillon, v. E-7; Victor Turquan, Bertillon, Mohean, v. E-8; Turquan, Chervin, Jacques Bertillon, Lagneau, v. E-9; Chervin, Lébé, Rousel, Blache, Landouzy, v. E-10; Laget, de Pietra Santa, Mireur, Georges Michet, v. E-11.

Frontal Sinus, Diseases—
Abscess — Ferguson, iv. D-34; Lawson, Pitiot, Sillar, Labit, iv. D-35.
Cysts—Karl Grossman, Gouguenheim, Ollier, iv. D-36.
Ectasia—Weinlechner, iv. D-35.
Inflammation of—Seiss, iv. D-35.
Maggots in—A. L. Fulton, F. W. Kuhn, iv. D-36.

Gall-bladder, Surgical Diseases—
Biliary Calculus—
Cholecystotomy — Cholecystectomy — Credé, Langenbuch, iii. C-46; Credé, Tait, iii. C-47; Mears, Depage, iii. C-48.
Cholelithotrity—Tait, iii. C-47; Mears, iii. C-48.
Stenosis Ductus Choledochus—
Cholecystenterotomy — Terrier, iii. C-48; Winiwarter, iii. C-49.
Galvanism, Depressing Effects—G. Griswold, anon., v. C-2; H. A. Hare, Edward Martin, v. C-3.
in Vegetable Parasitic Skin Disease—Wessinger, Reynolds, Cantrell, iv. A-57.
Gastro-enterostomy — Senn, Abbe, Matas, Wölfler, iii. C-25; Clarke, Kammerer, iii. C-26; Curtis, Briddon, Shively, Page, Wölfler, Senn, iii. C-27.
Gastrostomy—W. B. Rogers, iii. C-11; Greig Smith, Bayard Holmes, iii. C-12; F. J. Lutz, M. F. Porter, Annual 1889, J. C. Clark, iii. C-13; B. E. Hadra, D. N. Knox, J. J. Weaver, Arthur Jones, iii. C-14.
Gastrotomy—Hashimoto, iii. C-14; Le Dentu, iii. C-15; Terrier, iii. C-17.
and Enterotomy—Radestock, iii. C-17.
Gauze—
Adherent—R. F. Weir, iii. Q-9.
Creolin — Seidel, Hörnicke, Körtum and Bunsen, iii. Q-9.
Dry—A. Ulrik, Ehlers, iii. Q-5.
Iodoform—R. F. Weir, iii. Q-8.
Sublimate—Lubbert and Schneider, R. F. Weir, iii. Q-10; Taylor, iii. Q-11.
Gelsemium, Therapeutic Uses — G. F. Schreiber, A. S. Myrtle, W. Sinkler, anon., v. A-54.
Genito-urinary Apparatus in the Male—Surgical Diseases of—E. L. Keyes, iii. E-1.
Geranium Maculatum, Therapeutic Uses—John V. Shoemaker, v. A-54.

1st Col.—Go to Gu.
2d Col.—Go to Gu.
3d Col.—Go to Gu.

GENERAL INDEX.

- Genito-urinary apparatus in the male, surgical diseases of ...... iii. E- 1

- Geranium maculatum, therapeutic uses ...... v. A- 54

- Gestation, ectopic ...... ii. G-25, ii. I- 20
  - abdominal gestation (primary) ii. G- 43
  - diagnosis ...... ii. G- 27
  - differential diagnosis ...... ii. G- 29
  - etiology ...... ii. G- 25
  - expulsion of fœtus per rectum. ii. G- 26
  - in rudimentary uterine cornua ii. G- 27
  - interstitial gestation ...... ii. G- 41
  - ovarian gestation ...... ii. G- 38
  - tubal gestation ...... ii. G- 30
    - pathology ...... ii. G- 30
    - treatment ...... ii. G- 34
      - electrical ...... ii. G- 35
      - medical ...... ii. G- 38
      - surgical ...... ii. G- 35

- Glass coverings for wounds ...... iii. Q- 11

- Glottis, œdema, intubation in ...... iv. G- 7

- Glucose, therapeutic uses ...... v. A- 54

- Glycerin ...... v. B- 31
  - therapeutic uses ...... v. A- 54

- Glycosuria ...... iv. K- 30

- Goitre ...... iv. H- 2
  - diagnosis ...... iv. H- 2
  - treatment ...... iv. H- 3

- Gonococcus ...... iii. E- 7

- Gonorrhœa ...... i. M- 14

- Gout ...... i. K- 8
  - etiology ...... i. K- 8
  - pathology and pathological anatomy ...... i. K- 9
  - treatment ...... i. K- 9

- Grafting—mucous grafts, urethral ...... iii. E- 17

- Grave-yard pestilences ...... v. F- 26

- Growth and age ...... ii. N- 3

  - human ...... ii. N- 1

- Guaiacol (see Creasote) ... v. A-45, v. B- 29

THERAPEUSIS.

Goitre (*continued*).

Malignant or Diffuse.
Extirpation; leave a functionally-active pt. of gland in all cases; avoid wound of recur. laryngeal and card. br. of sympathetic, iv. H-5.

Nodular.
Enucleation, iv. H-5.

Recent Parenchymatous and Very Vascular.
Ligate afferent arteries, iv. H-5.

Gonorrhœa.

℞ hydrarg. salicyl., gr. iss (0.10 grm.); aq. destil., ℥viij (250 grm.); sod. bicarb., gr. xv to xx (1 to 1.3 grm.)—M. et ft. inject., i. M-14.

Gout.

Hygiene: Active phys. exercise, warm cloth., clean, well-ventil. rooms, cheerful occupa., abstin. from alcohol, bev. espec. ferm., suit. diet, i. K-9. *Diet:* Liberal use of meat and album. food, i. K-10; Contrexéville, Marienbad, Wildungen waters, v. D-24.

Acute.
Sod. salicyl., i. K-10; for pain in great toe, moisten slightly the painful pt., then pass over the surf. a stick of argent. nitr., iv. A-58.

Chronic.
Pure sod. phosphate, with sod. bicarb., i. K-10; Strathpeffer (Scotland) waters, v. D-25; Carlsbad, v. D-26; Néris-les-Bains, v. D-27; waters of Vittel and Ribeauville, v. D-28.

Gunshot Wounds.

Abdomen.
Immed. or delayed laparot., expect. plan. Rectal insuffl. of hydrogen, iii. M-5; abdom. incis., then rect. insuffl. of gas to detect perfora., within 6 hrs. of inj., iii. M-6; decalc. bone-plates; prelim. incis. along track of bullet or in med. line, iii. M-7; free drain. through wound without op. if septic. or peritonit. is present. *Expect. plan:* ice, opium, antisept. occlu., immed. lap., iii. M-8; compressed air of spray-appar. to detect perfor., iii. M-9.

Extremities.

Knee-joint.
Girdner's telephonic bullet-probe, resection, iii. M-11.

Shoulder.
If no w. of vessels, water dressing; expect. treat., iii. M-11.

Thigh.
W. of fem. art., conseq. hæmatocele: Lig. of prox. and dist. ends of art.; turn out clots, irriga. with sol. sod. chlorid. and ac. carbol., iii. M-11.

AUTHORS QUOTED.

Gestation, Ectopic—Lawson Tait, ii. G-25.
  Abdominal Gestation (Primary)—Lusk, Treub, Werth, Müller, L. Bruhl, ii. G-43; Walker, Schlectendahl, Kellar, Spiegelberg, Tait, ii. G-44.
  Diagnosis—J. C. Reeve, ii. G-27; Bernutz and Goupil, Tait, Parry, Baudelocque, Thomas, Reeve, ii. G-22.
  Differential Diagnosis—Strahan, Thoburn, Jewett, Petch, ii. G-29.
  Etiology—Bischoff, Hermann, Foster, Gray, Landois and Stirling, Dalton, Flint, Carpenter, Power, Chapman, Meadows, ii. G-25; Townsend, Tait, Jackson, Tait, ii. G-26.
  Expulsion of Fœtus per Rectum—D. B. Van Slyck, ii. G-26; James P. Tuttle, Autoriello, ii. G-27.
  in Rudimentary Uterine Cornua—Himmelfarb, ii. G-27.
  Interstitial Gestation—Hecker, Tait, Schwarz, Martin, Dunelius, J. B. Bolton, ii. G-41; Williams, Lowry, Playfair, Sänger, Koeberlé, Salin, Sänger, Litzman, ii. G-42.
  Ovarian Gestation—Granville, Patenke, Porter, Kammerer, Bandl, Marimus, Townsend, ii. G-38; Patenko, Paltauf, Zajaitzky, ii. G-39; Mann, Freeman, ii. G-40: H. T. Byford, W. H. Byford, ii. G-41.
  Tubal Gestation—
    Pathology—Townsend, Bandl, Leopold, ii. G-30; Tait, Spiegelberg, Hofmeier, Eastman, Tait, ii. G-31; Braxton Hicks, Engelmann, ii. G-32.
    Treatment-Hanks, ii. G-34.
      Electrical—Lusk, Thomas, ii. G-35.
      Medical—Gossman, Winckel, ii. G-38.
      Surgical—Jewett, Strahan, ii. G-35; Lusk, Playfair, Tait, Barnes, ii. G-36; Tait, Breisky, ii. G-37; Alban Doran, ii. G-38.

Glass Coverings for Wounds—Burchmore, iii. Q-11.

Glottis, Œdema, Intubation in—Altemirano, Semeleder, Ingals, iv. G-7.

Glucose, Therapeutic Uses—Dujardin-Beaumetz, Sée, v. A-54.

Glycerin—Pavy, Luchsinger, and Weiss, Eckhard, Ransom, v. B-31.
  Therapeutic Uses—Walter Chrystie, R. Lépine, Niesel, v. A-54; Jaroschi, Ritzert, M. Schweicher, V. Idelson, Milöëff, George Grewcock, Herman, A. S. Polübinsky, G. H. Burford, W. B. Moore, Kulus, v. A-55; Carl Lüderitz, v. A-56.

Glycosuria—Kisch, Maritz, Fischer, Germain Sée, Swift, iv. K-30.

Goitre—
  Diagnosis—L. H. Petit, iv. H-2; Tillaux, iv. H-3.
  Treatment—Terrillon, iv. H-3; Terrier, Schwartz, Raymond, Heymann, Duret, Lacaille, iv. H-4; E. F. Ingals, Kocher, C. Audry and A. Poncet, Duret, Chrétien, Zesas, Bose, L. Brown, Wolf, G. Stoker, Rydygier, iv. H-5; Siry, Schwartz, Dardel, M. A. Wolfler, Caselli, Brown, Kocher, iv. H-6.

Gonococcus—Neisser, Lustgarten and Mannaberg, E. Legrain, iii. E-7; Diday and Doyon, Strinschneider, Rodait, Strauss, Roux, Neisser, iii. E-8; Gram, Neisser, Roux, Winter, iii. E-9.

Gonorrhœa—Szadek, i. M-14.

Gout—
  Etiology—A. Haig, i. K-8.
  Pathology and Pathological Anatomy—Garrod, Ebstein, Pfeiffer, i. K-9.
  Treatment—G. Mortimer, Granville, A. Haig, Ebstein, Pfeiffer, Legrand, Todd, i. K-10.

Grafting—
  Mucous Grafts, Urethral—Wolfler, iii. E-17.

Grave-yard Pestilences—Ed. Sanitary Journal, Sir Spencer Wells, Detroit Board of Health, F. Eklund, V. Ackermann, v. F-26; Johnson Herbert, v. F-27.

Growth and Age—Charles Sedgwick Minot, ii. N-1.
  Human—K. Oppenheimer, ii. N-3.

Gum, Polypus of the—A. W. W. Baker, Wedl and Rothman, iii. J-9; Baker, Scott, iii. J-10.

GENERAL INDEX.

Gum, polypus of the....................iii. J- 9

Gunshot, penetrating, and poisoned
  wounds....................................iii. M- 1

Gunshot wounds, in general.........iii. M- 1

  of abdomen..............................iii. M- 5

    Senn's method of diagnosis
                                                iii. M- 5

    treatment...............................iii. M- 6

  of chest....................................iii. B- 3

  of extremities...........................iii. M- 11

  of head and neck......................iii. M- 2

  of thorax...................................iii. M- 4

Gymnastics (see Massage)...........v. A- 89

Habitations, hygiene of................v. F- 23
  disinfection of...........................v. F- 23
  garbage cremation......................v. F- 23
  sewage and sewage farms.........v. F- 24
  tenement dwellings....................v. F- 23

Hæmatin...v. I- 4

Hæmatocele, pelvic........................ii. F- 45

Hæmatoma, multiple......................iii. I- 5

Hæmatothorax...........................iii. B-2, 3, 41

Hæmaturia, etiology and treat-
  ment...iv. K- 22

Hæmochromogen...........................v. I-4, 10

Hæmoglobinuria, etiology and treat-
  ment...iv. K- 24

Hæmophilia, etiology and pathology
                                                ii. E- 24

Hæmoptysis......................................i. A- 48
  etiology..i. A- 48
  pathology......................................i. A- 48
  treatment......................................i. A- 49

Hæmorrhage, arterial....................iii. I- 4
  cerebral (see Brain, diseases)..ii. A- 16
  in abdominal operations.........iii. C- 1
  venous.......................................iii. I- 14

Hæmorrhoids—pathology............iii. D- 9
  treatment...................................iii. D- 1

Hæmosiderin...................................ii. E- 2

Hair, identification of human......iv. J- 7

Hallux valgus, treatment............iii. F- 61
  Morris's apparatus...................iii. F- 62

Hamamelis, therapeutic uses.......v. A- 56

Harelip, treatment.........................iii. J- 19

THERAPEUSIS.

Gunshot Wounds (*continued*).

Head.

Cranium: Antisep. without explora., iii. M-2: charpie and cold, remove bullet if poss.; expect. treat., iii. M-3.

Thorax.

Absorb. antisep. dress. over w. with firm band., cold to chest; hæmostat. and anodynes int.; complete horizon. rest, iii. M-4. *If hæm.*, enlarge w. of entr. and exit, lig. bleed. pts., or plug firm. course of w. with antisep. gauze, iii. M-4.

of Lung.
Drain.-tubes and irriga. with sol. pot. permang., iii. M-4.

of Pericardium.
Ice to thorax, morph. hypod.: antisep. dress., iii. M-5.

Hæmatothorax.
  if Arterial.
  If dulln. and no respira. on affect. side, with large accumu. of bld., evac. by trochar or free incis., and search for bleed. ves., iii. B-3.
  if Lung Injured.
  Rest, sedatives. iii. B-3.
  if Venous.
  Phlebot. ad syncope; tartar emet. and veratrum with ergot and opiates, iii. B-3; favor escape of bld. by position. *If much*, evac. by op.; *if little*, let alone, iii. B-4; incision, iii. B-41.
Hæmaturia, Malarial.
  Avoid free use of quin.; use calomel, fol. by saline, tonic, stimulant med., careful diet; cal. and sod., or ipecac.; Warburg's tinct.; gallic acid, ferri sulph., quin., strych. sulph., astring. min. waters; Rockbridge alum-w., Bedford springs; electric baths, iv. K-24; Bryonia alba, v. A-25.
Hæmoglobinuria.
  Malarial.
  Atrop. and strych., iv. K-30.
  Scrofulous.
  Constit. treat. (arsenic, pot. iod., iron), iv. K-28.
Hæmoptysis.
  Lessen blood-pressure, strengthen vessel-walls, enrich blood. *Dry diet.* Calcii lactophosph., gr. x (0.65 grm.), in glass water daily; iron, digitalis, full doses; ext. hamamelidis virg. fld. [♏lx to xc (4 to 6 grm.)]; ext. hydrastis fld. [♏ viij to xxx (0.5 to 2.0 grm)]: when cough is severe, pulv. Doveri, gr. ij (0.13 grm.), with fld. ext. hamamel. or hydrast.; *cold air*, 32° F. (0° C.); Hæmostatics, turpentine, tr. laricis, ac. gallic., plumbi, acet.; alum and turp. inhal.; atropine, gr. 1-100 (0.006 grm.), ev. 6 hr. hypod., i. A-50; antipyrin, v. A-16: byronia, v. A-25; geranium mac., v. A-54. Opium with lead acet. (when bleeding has just com.). morphine inject., v. A-97.
Hæmorrhage.
  Arterial.
  Surgical: Double ligature, cut or uncut between: torsion: acupressure with figure-of-8 lig., iii. I-4. *Medical:*

AUTHORS QUOTED.

Gunshot, Penetrating, and Poisoned Wounds—Albert Vander Veer, Willis G. MacDonald, iii. M-1.
Gunshot Wounds—
  of Abdomen—N. Senn, C. S. Briggs, J. H. Dunn, David Barrow, iii. M-5; A. T. Cabot, Braman, Senn, L. A. Stimson, Robert Abbe, H. C. Dalton, iii. M-6; L. A. Stimson, Landy Markoe, Bull, Weir, iii. M-7; Reclus, Terrier, Berger, Nélaton, Peyrot, Chauvel, Charvot, A. W. Barber, iii. M-9; Carlos C. Granero, J. H. Dunn, G. E. Goodfellow, E. M. Moore, Jr., A. T. Cabot, F. B. Harrington, Berger, Braman, Vidal G. Thorpe, Greenshields, iii. M-9; T. A. McGraw, C. E. Bell, David Barrows, iii. M-10.
  of Extremities—F. C. Bresler, J. Johnson, J. McF. Gaston, Thos. Hayes, F. S. Dennis, Girdner, iii. M-11.
  of Head and Neck — Schwartz, Berger, Liegévis, iii. M-2; Schwartz, von Bergmann, Frans Vogl, Dagron, Le Fort, Joseph Prochnov, Berros and Verneuil, Vincent Richards, iii. M-3; Vander Veer, T. M. Shah, iii. M-4.
  of Thorax—Mosetig-Moorhof, Winewater, iii. M-4; F. Charlesworth, Novatsky, iii. M-5.

Habitations, Hygiene of—

  Disinfection of—Cyrus Edson, v. F-23.

  Garbage Cremation — Anon.. Ed. Medical Press, Scott, v. F-24.

  Sewage and Sewage Farms—Alfred Carpenter, v. F-24; Cornil, Pasteur, v. F-25.

  Tenement Dwellings—Ed. Sanitary Journal, James B. Russel, v. F-23.

Hæmatoma, Multiple—Rogers, iii. I-5.

Hæmatothorax—Hofmokl, iii. B-41.

Hæmaturia, Etiology and Treatment—Bazy, Chicken, French, Molloff, Chevalier, iv. K-22; Lebse, Chapin, Fabre, Plant, Giraud, Gardner, Guyon, v. K-23; Howard, Gary, Tyson, iv. K-24.

Hæmoglobinuria—Lépine, iv. K-24; Filehne, Babes, iv. K-25; Grandhomme, Hirst, Baginsky, iv. K-26; Bristowe and Copeman, Bruzelius, Eklund, iv. K-27; Barton, McMunn, Rossini, iv. K-28; Joseph, Bastianelli, Toralbo, Meyer, iv. K-29; Annual, Stamps, Burggraeve, iv. K-30.

Hæmophilia, Etiology and Pathology—Fred. S. Eve, Barling, Hermann Bock, Louis Vintras, ii. E-24; James Young, M. Cohn, G. Somma, Gregorio Cosella, Bock, ii. E-25.

Hæmoptysis—

  Etiology—Osler, i. A-48.

  Pathology—Cotter, i. A-48.

  Treatment — Waugh, Koeniger, Tullis, i. A-49; Walker, Stirling, Haussmann, i. A-50; Christopher, i. A-51.

Hæmorrhage—

  Arterial — Teale, Jackson, Weiss, Murdoch, Muscroft, iii. I-4; Phillips, Petrescu, Kobert, Golowina, Michailoff, St. Germain, Hénocque, Meredith, iii. I-5.

  in Abdominal Operations — L. A. Stimson, iii. C-1; J. E. Mears, iii. C-2.

  Venous — Rockwell, Bradford, Moussous, iii. I-14; Deaver, iii. I-15.

Hæmorrhoids, Pathology—Allingham, iii. D-9; Whitehead, Allingham, iii. D-10; Whitehead, Cripps, iii. D-11; Whitehead. H. W. Allingham, iii. D-12; Whitehead, Allingham, iii. D-13.

GENERAL INDEX.

Hare-syphilis..........iv. L- 26

Hay fever..........iv. D. 19

Health resorts..........v. D- 7

Heart, diseases..........i. B- 41
- **arterio-sclerosis**..........i. B- 41
- **cardiac failure and sudden death**..........i. B- 46
  - **from overstrain**..........i. B- 47
- **foreign bodies**..........i. B-5, iii. B- 5
- **hypertrophy**..........i. B- 40
- **injuries to**..........iii. B- 4
- **movable**..........i. B- 57
- **new growths**..........i. B- 54
- **obesity, abnormal rhythm in**...i. B- 40
- **prognosis, general**..........i. B- 28
  - **mitral disease in children**...i. B- 35
- **rupture**..........i. B- 52
- **syphilis**..........i. B- 53
- **therapeutics**..........i. B- 57
  - **adonis**..........i. B- 61
  - **alkaloids and glucosides**......i. B- 57
  - **aqua ammoniæ fortior**.........i. B- 64
  - **calomel**..........i. B- 63
  - **coronilla scorpioides**..........i. B- 63
  - **hydrotherapy**..........i. B- 64
  - **lactose**..........i. B- 62
  - **nux vomica**..........i. B- 62
  - **strophanthus, in adult**.........i. B- 58
    - **in childhood**..........i. B- 61
- **valvular disease**..........i. B- 15
  - **diagnosis**..........i. B- 25
  - **diastolic murmur and aortic regurgitation**..........i. B- 20
  - **etiology**..........i. B- 15
  - **pathology**..........i. B- 23
  - **symptomatology**..........i. B- 16
  - **treatment**..........i. B- 57
- **voluntary control**..........i. B- 41
- **wounds**..........i. B- 55

THERAPEUSIS.

HÆMORRHAGE, ARTERIAL (*continued*).

Chloral [gr. viiss to xxx (0.50 to 2 grm.)] in sol. by mouth; decoct. of bryonia alba for int. hæm., except when from intest. canal: antipyrin [gr. iij to xx (0.20 to 2 grm.)], iii. I-5; transfusion ¾ % saline sol., 1 pint (½ litre), ii. E-20.

IN ABDOMINAL OPERATIONS.

Ligature en masse, iii. C-1; lig. in section and then *en masse*, iii. C-2.

INTESTINAL.

Transfusion defibrin. blood, ℥viij (235 c.cm.), ii. E-21.

POST-PARTUM.

Transfus. ¾ % saline sol. and defibrin. blood [℥viij (235 c.cm.)], ii. E-21; saline sol., 3 %, ℥xvij to xxxv (½ to 1 litre), ii. E-22. (See also Puerperal Diseases.)

SECONDARY—FOLLOWING AMPUTATION.

Aseptic lig.; iodof. tampon, iii. G-1.

VENOUS.

LARGE TRUNKS.

Neck, compression; *axilla*, lat. lig. or lig. of whole trunk: avoid collat. vessels, but tie axillary artery; *femoral*, same rule; forcipressure, ligature, iii. I-14.

SUPERFICIAL.

Positive polar galvanization, v. C-8; antipyrin loc., v. A-16; geranium mac., v. A-54.

HÆMORRHOIDS.

Whitehead's op.: clamp and cautery; ligature, iii. D-1; ac. carbol. inject., iii. D-7; infus. beet-root, ½ to 1 tumblerful at bed-time or early morn., v. A-22; hamamelis, v. A-46; olive-oil, pure, with wine int., or by inject. with salt, ac. boric, or sod. sulphocarbolate and laudan., v. A-97; tinct. rhus tox. ½-drop doses, with cascara cord., v. A-117.

HALLUX VALGUS.

G. R. Fowler's op. (resect. of head of 1st metatarsal bone), iii. F-61: Morris's apparat. for after-treatment; compartment-stocking and shoe, iii. F-62; Hüter's op.; sect. of shaft of metatars. bone to facil. reduction, iii. F-64.

HAY FEVER.

Galvano-caut. and cocaine; nervines (bromides, antipyrin, quinine, etc.) intern.; bougies of cocoa-butter containing cocaine, gr. j (0.065 grm.); atropine, gr. 1-120 (0.0005 grm.)—M. S.: Force betw. sept. and turb. bodies while lying down, remain a few mins. Menthol in almond- or olive- oil (10 % to 20 %) appl. to sensitive areas with brush or in coarse spray, iv. D-19.

HEART, DISEASES.

ARTERIO-SCLEROSIS.

Pot. iod. for 3 or 4 yrs., gr. xlv to lx (3 to 4 grm.) daily; suspend for 8 to 10 d. each mo., i. B-52. *If cyanosis* and *pulm. congest.*, bleed ℥xiiss (400.0 grm.) i. B-44. *If incr. arterial tens.*, use iodides, nitrites, bleeding. *If lowered tension*, use digitalis, i. B-43.

CARDIAC FAILURE.

Tinct. nucis vom., small doses, i. B-62; sparteine, v. A-125.

AUTHORS QUOTED.

HÆMORRHOIDS (*continued*).
- **TREATMENT**—Whitehead. Henry Smith, Brown, Turner, Kelsey, iii. D-1; Smith, Wildbore, Kelsey, Whitehead, iii. D-2; Allingham, Kelsey, Whitehead, Brown, iii. D-3; Kelsey, Whitehead, H. Smith, Allingham, iii. D-4; Kelsey, Allingham, Whitehead, Weir, iii. D-5; Whitehead, Kelsey, iii. D-6; Kelsey, Whitehead, iii. D-7; Whitehead, Allingham, iii. D-8; Kelsey, Whitehead, iii. D-9.

HÆMOSIDERIN—Neumann, ii. E-2.

HAIR, IDENTIFICATION OF HUMAN—L. Schmitz, iv. J-7.

HALLUS VALGUS, TREATMENT—George R. Fowler, iii. F-61; R. T. Morris, iii. F-62; Morris, Reverdin, iii. F-63; Hüter, iii. F-64.

HAMAMELIS, THERAPEUTIC USES—Anon., A. de Watteville, anon., v. A-56.

HARE-SYPHILIS—Bollinger, iv. L-26.

HAY FEVER—Woolen, Natier, Gouguenheim, J. I. Taylor, H. C. Wood, William Hill, iv. D-19.

HEART, DISEASES—
- **ARTERIO-SCLEROSIS**—Gingeot, Huchard and Weber, i. B-41; Huchard and Weber, Huchard, i. B-42; Huchard, i. B-43; Huchard, Potain, Lefèvre, i. B-44.
- **CARDIAC FAILURE AND SUDDEN DEATH**—J. A. McWilliam, i. B-46.
  - **FROM OVERSTRAIN** — Roy and J. G. Adams, i. B-47.
- **FOREIGN BODIES**—Meachem, George L. Peabody, i. B-55.
- **HYPERTROPHY**—Leyden, Fraentzel, Tangl, i. B-40; Bouveret and Chabalier, i. B-41.
- **INJURIES TO**—B. A. Watson, iii. B-4; Wyman, Shattuck, Peabody, Rotch, Dwight, iii. B-5.
- **MOVABLE**—Rumpf, Pick, i. B-57.
- **NEW GROWTHS**—Redtenbacher, Sonnenscheim, Caryophillis, Martin Durr, T. W. Zahn, Mariani, Guttman, Monroe Smith, Shaw, i. B-54; H. P. Loomis, Dittrich, i. B-55.
- **OBESITY, ABNORMAL RHYTHM IN**—Kirsch, i. B-40.
- **PROGNOSIS, GENERAL**—Leyden, i. B-28; Heberden, i. B-29; Traube, Fraentzel, Oertl, Zauder, i. B-31; Oertl, Jaksch, i. B-32; Fraentzel, i. B-35.
  - **MITRAL DISEASE IN CHILDREN**—S. H. Owen, i. B-35; Germain Sée, M. A. Boyd, i. B-36; Hampeln, G. S. Middleton, i. B-37.
- **RUPTURE**—Meyer, i. B-52.
- **SYPHILIS**—Feulard, Mauriac, i. B-53; T. J. Lang, i. B-54.
- **THERAPEUTICS**—
  - **ADONIS**—Jumon, Thomas Oliver, P. Marfori and Borgiotti, i. B-61.
  - **ALKALOIDS AND GLUCOSIDES**—G. Sée, i. B-57; Dujardin-Beaumetz, i. B-58.
  - **AQUA AMMONIÆ FORTIOR**—Barr, Bowen, i. B-64.
  - **CALOMEL**—Sée, i. B-63.
  - **CORONILLA**—Cardot, i. B-63; Spillman, Schlagdenhauffen.
  - **HYDROTHERAPY**—Peter, i. B-64.
  - **LACTOSE**—G. Sée, i. B-62.
  - **NUX VOMICA**—Bowie, i. B-62.
  - **STROPHANTHUS, IN ADULT** — Dujardin-Beaumetz, i. B-58; Constantin Paul, Bucquoy, G. Sée, Fraser, Dujardin-Beaumetz, i. B-59; Bucquoy, Féréo and Semmola, Nativelle, Hornolle, Stockwiss, Dujardin-Beaumetz, ConstantinPaul, Nothnagel, Oertl, Potain, i. B-60.
    - **IN CHILDHOOD**—Demme, i. B-61.

GENERAL INDEX.

Heart, pericardium, and arteries, diseases ... i. B- 1

Heart, physiology ... v. I- 24
- action of snake-poison on ... v. B- 46
- first sound, causation ... v. I- 24
- inhibition, experiments ... v. I- 25
- rigor mortis, action after ... v. I- 26
- vitality and temperature ... v. I- 24

Heat, hygiene of ... v. F- 8
- heating of conveyances ... v. F- 9
- methods of heating ... v. F- 8
- therapeutics of ... v. B- 32

Hedeoma, toxic effects ... v. A- 57

Hedwigia balsamifera ... v. B- 33

Hemianopsia (see Brain, diseases) ... ii. A- 24

Hendon and Wiltshire disease of cows ... iv. M- 5

Hernia ... iii. C- 50
- diaphragmatic ... iii. C- 50
- gangrenous, resection ... iii. C- 55
- inguinal, radical cure ... iii. C- 56
- lumbar ... iii. C- 53
- scrotal ... iii. C- 55
- umbilical, congenital ... iii. C- 51
- ventral ... iii. C- 51

Herpes, recurrent ... iv. A- 47
- zoster ... iv. A- 6
  - atypicus gangrænosus hystericus ... iv. A- 8
  - ophthalmicus ... iv. A- 9

Hip-joint disease (caries)—pathology and treatment ... iii. F-1, iii. G- 6
- Blanchard's apparatus ... iii. F- 9
- flushing-gouge ... iii. F- 4
- Lannelongue's immobilization apparatus ... iii. F- 15
- Phelps's apparatus ... iii. F- 12

THERAPEUSIS.

HEART, DISEASES (*continued*).

FOREIGN BODIES.
Removal, if poss., i. B-55.

SYPHILIS.
Pot. iod., tonics, stimulants, i. B-54.

VALVULAR DISEASE.

AORTIC INSUFFICIENCY
If failure and overcome compensa., sparteine [sulph., gr. 1-10 to iss (0.007 to 0.10 grm.)], or strophanthin [gr. 1-200 to 1-100 (0.0003 to 0.0006 grm.): *if oppression*, pot. iod., i. B-57; adonidin. gr. 1-65 (0.001 grm.) in aq. chlorof., 4 t. d., i. B-61; coronillin [gr. 1-20 to ¼ (0.003 to 0.015 grm.)], i. B-64.

CARDIAC DROPSIES.
Milk, caffeine benzoate [gr. j to v (0.07 to 0.33 grm.)]; digitalis: calomel, gr. vj to ix (0.4 to 0.6 grm.), daily, in 2 to 3 dos., contin. 3 d., i. B-58; strophanthus [tinct. (1 to 20), ♏v to x (0.33 to 0.66 grm.)]; adonis vernalis, ʒj to ij (4 to 8 grm.), in infus., i. B-58; calomel, guarded by pot. chloras., to prev. saliva., and op. to prev. colic or diarrh., i. B-63; chimaphila, v. A-31; lactose, v. A-86; pot. iod. and milk, v. A-110; sparteine, gr. iss to iv (0.10 to 0.26 grm.), 3 or 4 t. daily, v. A-125.

EMBOLUS.
Avoid digitalis, i. B-61; aq. ammon. fort., ♏v (0.31 grm.), in ice-water, ev ½ hr., i. B-64.

FATTY HEART.
Iodide; strophanthin; sparteine; convallarine [gr. ¼ to j (0.015 to 0.06 grm.)], i. B-58; Oertl's method, i. B-60; lycopus virginicus, v. A-88.

MITRAL INSUFFICIENCY.
Digitalis and iodide *to slow the pulse; for dyspnœa*, iodide; antipyr., hypod. *For dropsy*, milk, caffeine benzoate; digitalis; calomel, gr. vj to ix (0.4 to 0.6 grm.), daily, in 2 or 3 dos., contin. 3 d., i. B-58; scoparius ext., ʒss to j (2 to 4 grm.), i. B-60; adonidin, gr. 1-65 (0.001 grm.), aq. chlorof., 4 t. d., i. B-61; lactose, ℥iij ʒij (200 grm.), i. B-62; hydrotherapy, frictions, sponge-baths of alcoh. and water, i. B-64; strophanthine, gr. 1-330 1-160 (0.0002 to 0.0004 grm.), v. A-127.

MITRAL STENOSIS.
In young women often no treat. necess.; *if dyspnœa*, iodide; *if dropsy*, digitalis or caffeine, gr. j to v (0.07 to 0.33 grm.)]; strophanthine, gr. 1-640 (0.0001 grm.), 2 to 3 t. d., i. B-58; ext. strophanthi, gr. 1-64 (.001 grm.), equals Fraser's tinct., gtt. v, i B-59; ext. rose-laurel (nerium oleander), gr. iss to iij (0.10 to 0.20 grm.), i. B-60.

HEDEOMA, TOXIC EFFECTS.
Morph. sulph., gr. ⅛ (0.16 grm.), with atrop. sulph., gr. 1-120 (0.0005 grm.); heat; milk, v. A-56.

HERNIA.

DIAPHRAGMATIC.
Postempski's op.: Reduction of H. and sut. of diaphrag. wnd., iii. C-50.

GANGRENOUS.
Resection; spontan. cure and artifi. anus; prim. op. only when all condit. are favorable, and only in hospital;

AUTHORS QUOTED.

HEART, DISEASES (*continued*).

VALVULAR DISEASE—

DIAGNOSIS—Fowler, von Basch, Bettleheim, Grossman, Kanders, Schweinburg, Speck, Duroziez, Morton Prince, J. H. McCollom, i. B-26; Lazarus-Barlow, Bençzur, Sacchi, Guiocco, i. B-27; Bianchi, Granville, G. Sée, Grob, i. B-28.

DIASTOLIC MURMUR AND AORTIC REGURGITATION—Arthur Klein, Karl Dehio, Graham Steel, i. B-20; Martius, Huppert, Da Costa Seits, Thurn, i. B-21; Perret, Leudet, i. B-22; J. C. S. Vaughan, C. M. Hay, i. B-24; Ernest Dupré, i. A-25.

ETIOLOGY—Nikiforow, Jaccoud, Ritter, i. B-15; G. Sée, M. F. Cox, Kintzing, i. B-16.

PATHOLOGY—Ernest Dupré, i. B-25.

SYMPTOMATOLOGY—Dickinson, i. B-16; Acland, Dickinson, Acland, i. B-17; F. C. Turner, Barclay-Dickinson, Fenwick and Overend, i. B-18; E. S. Reynolds, Dickinson, i. B-19; Dickinson, i. B-20.

TREATMENT—*vide* HEART, THERAPEUTICS—i. B-56.

VOLUNTARY CONTROL—E. A. Pease, i. B-41.

WOUNDS—G. A. White, i. B-55; Thomas, Kravkoff, Tchenkunoff, Zisman, Cristani, Messeri, i. B-56.

HEART, PERICARDIUM, AND ARTERIES, DISEASES—Edward N. Whittier, H. F. Vickery, E. M. Greene, i. B-1.

HEART, PHYSIOLOGY—

ACTION OF SNAKE-POISON ON—Feoktistow, v. B-46.

FIRST SOUND, CAUSATION—Krehl, v. I-24.

INHIBITION EXPERIMENTS—McWilliams, Fano and Fayod, Gaskell, v. I-25; ANNUAL 1888, Fano, Gaskell, v. I-26.

RIGOR MORTIS, ACTION AFTER—Heubel, v. I-26; Hermann, Heubel, Brown-Séquard, ANNUAL 1888, v. I-27.

VITALITY AND TEMPERATURE—Martin and Applegarth, v. I-24.

HEAT—Kalashnikoff, v. B-32; Rallière, v. B-33.

HYGIENE OF—P. de Pietra Santa, v. F-8.

HEATING OF CONVEYANCES—Gautier, Pernolet, v. F-9.

METHODS OF HEATING—Et. Ferrand, v. F-8.

HEDEOMA, TOXIC EFFECTS—M. O. B. Wingate, v. A-56.

HEDWIGIA BALSAMIFERA—Gaucher, Combemale and Marestang, v. B-33.

HENDON AND WILTSHIRE DISEASE OF COWS—Klein, iv. M-5.

HERNIA—

DIAPHRAGMATIC—Postempski, iii. C-50.

GANGRENOUS—Richardson, iii. C-55.

INGUINAL, RADICAL CURE—McBurney, Otto Riesel, iii. C-56.

LUMBAR—Hume, iii. C-53; Hutchinson, Raraton, iii. C-54.

SCROTAL—Drakin, iii. C-55.

UMBILICAL, CONGENITAL—Lindfors, Martin and Harland, iii. C-51; Briddon, iii. C-53.

VENTRAL—Neve, iii. C-51.

HERPES—

RECURRENT—Hutchinson, iv. A-47.

ZOSTER—Greenough, iv. A-5; G. H. Fox, Robinson, Zeissler, Kaposi, iv. A-7; Leudet, Jr., Salter, iv. A-8; Byron Bramwell, iv. A-8.

GENERAL INDEX.

Histology and technology............v. H- 1

Hoàng-nàn, therapeutic uses........v. A- 56

Hodgkin's disease......................iii. K- 21

Hydatid cyst, of abdomen, suppurating...........................iii. C- 7
of liver......................i. C-38, iii. C- 44
of spleen...............................iii. C- 49
subphrenic..............................iii. C- 8

Hydracetin (see Pyrodin)............v. A-111

Hydrargyrum, therapeutics and toxicology ....v. A- 56

Hydrarthrosis.............................iii. G- 26
intermittent..........................iii. G- 27

Hydrastis Canadensis, therapeutic uses...................................v. A- 65

Hydrochloric acid, toxic effects......v. A- 66

Hydrocinnamic acid, therapeutic uses v. A- 66

Hydrocyanic acid...........v. A-111, v. B- 34

Hydrofluoric acid, therapeutic uses v. A- 66

Hydrogen peroxide, effect on kidneys v. A- 66

Hydronaphthylamine (mydriatic)v. A- 67

Hydropath hot pad and binder......i. C- 9

THERAPEUSIS.

Hernia, Gangrenous (*continued*).
rapid, skillful work, iii. C-55; excis. not justifiable unless pat.'s condit. offers some hope, and relief of sympt. of obstruct. may be fol. by suff. improv. to make secondary op. poss., iii. C-56.
Inguinal.
In adult: McBurney's op. for radical cure, iii. C-56. *In newborn, strangulated:* Op. under chlorof., ii. L-21.
Lumbar.
Hume's op., iii. C-53.
Scrotal, Incarcerated.
Irrigate with ether (20 pts.) and hyoscyam. oil (4 pts.); teasp. of ether over hern. ev. ¼ to ½ hr. and cover with compress, iii. C-55.
Umbilical.
In adult: Briddon's op., iii. C-53. *In newborn:* Sac opened; intest. replaced; opening closed by double catgut lig.; umbil. cord and sac removed ½ in. (1.4 cm.) from navel. Binder if too extens. for op.; extra-periton. op., ii. L-21. Laparot.; edges of hern. open. freshened; suture under antisep. precaut., iii. C-51. *Non-op. meth.:* Reduc., bring recti musc. together; flat-cork or lint compress, size of dollar, over umbil., retain with rub. adhes. plast., almost completely around body; binder over all, iii. C-52.
Ventral.
Incis., reduct., ligation of neck of sac; abd. opening sutured, incl. periton. Reduct., incis. of sac; sac dissected out close to ring, and lig. with Staffordshire knot, with contin. sut. to cut edge of periton.; margins of ring approx. by deep cat-gut sut., incl. periton., iii. C-51.

Herpes.
Alc. sol. anthrarobin (10% to 20%), v. A-13.
Recurrent.
Arsenic [Fowl. sol., gtt. j to v., t.i.d.], iv. A-47.
Tonsurans.
Sol. hydroxylamine in alc. and glyc. (1 to 1000), appl. 3 to 5 t.d., v. A-66.
Zoster.
Const. galv. curr., iv. A-7.

Hip-joint Disease.
Caries.
Compression, extens. appar. with bands of adhes. plast., reaching up to Fallopian ligament; counter-extens. by sinking pelvis into bed, rarely by weights (12 to 25 lbs.—5 to 10 kilos); contin. extens. for years, even after cure; straighten limb with Volkmann's stringed stocking at night only; cut adduct. if too powerful; pass. mot. 6 or 8 d. after op; in 3 or 4 wks. use "walking-chair;" in bad cases an appar. to keep limb abducted. Anter. incis. and excision, iii. G-6.
Early Stage.
Perfect rest; protect from all intra-articular press. or mot. of jnt. involved to allow all irrita. to subside; nutrit. diet, open-air exercise (with dis. jnt. thus protected). If dis. still progresses, then make exsection and rad. remov. of all tuberc. portions: Barker op., iii.F-2; Kocherr's

AUTHORS QUOTED.

Herpes Zoster (*continued*).
Atypicus Gangrænosus Hystericus—Kaposi, Doutrelepont, Van Harlingen, iv. A-8.
Ophthalmicus — Sattler, Leudet and Barié, Hutchinson, iv. A-9.

Hip-joint Disease—
Caries—Krause, Schede, Volkmann, Podres, Diakonoff, iii. G-6.
Pathology and Treatment—M. M. Sherman, Arthur E. Baker, iii. F-2; Hueter, R. W. Parker, iii. F-3; Thomas, Bilton Pollard, A. F. Jonas, Kocher, iii. F-5; Volkmann, Lewis Hall Sayre, iii. F-6; F. Semeleder, R. Lacirta, Wallace Blanchard, iii. F-7; Thomas, Blanchard, A. M. Phelps, John H. Huddleston, iii. F-9; Thomas, Nélaton, Bernard Bartow, iii. F-10; Phelps, Volkmann, Albert, König, iii. F-11; J. Ridlon, Shaffer, R. H. Sayre, N. M. Shaffer, iii. F-13; R. H. Sayre, Flament, Lannelongue, iii. F-14; Sayre, Lannelongue, Vincent, L. A. Sayre, R. H. Sayre, Yale, Krackowitser, Markoe, Henry, T. Sabine, Ollier, A. N. Roussel, Noble Smith, Kilpatrick, Greig Smith, William Stokes, Thornley Stoker, iii. F-16; V. P. Gibney, E. Miller, Aberst, Volkmann, Ap. Morgan Vance, iii. F-17.

Histology and Technology—Frank W. Brown, v. H-1.

Hoàng-Nàn, Therapeutic Uses—Sherston Baker, v. A-56.

Hodgkin's Disease—Buchanan, Railton, Adler, Stewart, iii. K-22.

Hydatid Cyst—
of Abdomen, Suppurating—J. M. Girdlestone, iii. C-7.
of Liver—Thomas, iii. C-44; Morris, Roggi, Ceccherelli, Postempski, Bariacci, iii. C-45.
of Spleen—Mâs, iii. C-49.
Subphrenic—Karl Lobker, iii. C-8.

Hydrargyrum, Therapeutics and Toxicology—Semmola, v. A-56; Merget, P. Carles, Stükovenkoff, v. A-57; Edouard Salomon, Jorissemne, Petresco, Francois Scalji, V. C. Vaughan, v. A-58; William B. Hills, Robert T. Morris, de Renzi, C. R. Illingworth, Miquel and Rueff, G. Sims, Woodhead, v. A-59; E. P. Bernardy, Selldén, J. Sterling Carriger, J. G. Edgren, H. Huchard, Komme, v. A-60; Vladimir F. Buschuew, Masius, J. Pal, Colombe, Hugo Lowenthal, Karl Ullmann, v. A-61; J. Roussel Chernoguboff, Barfoed, George Hay, Herbert G. Lee, Pulmert, v. A-62; Malécot, Ludwig, Reder, A. G. Sandberg, v. A-63; E. Kaufmann, Vladimir Lucasiewicz, Henry P. Loomis, Virchow, v. A-64; J. W. Runeberg, Herfeld, Lesser, Arkle, Runeberg, v. A-65; E. Herfeld, v. A-91.

Hydrastis Canadensis, Therapeutic Uses—A. Felsenberg, v. A-65; Mills C. Brasher, v. A-66.

Hydrochloric Acid, Toxic Effects—Letulle and Vaques, K. N. Viongradoff, v. A-66.

Hydrocinnamic Acid, Therapeutic Uses—Klein and Lingard, C. E. Williams, v. A-66.

Hydrocyanic Acid—Grehant, Claude Bernard, v. B-34.

Hydrofluoric Acid—Therapeutic Uses—Ludwig Polyak, Gauger, v. A-66.

GENERAL INDEX.

Hydrophobia (see Rabies)...........iii. O- 1

Hydrothionuria.........................iv. K- 59

Hydroxylamin, in skin diseases..iv. A- 51
therapeutic uses.....................v. A- 67

Hygiene.......................................v. F- 1

Hymen, diseases..........................ii. H- 2
annular.......................................ii. H- 2
atresia...ii. H- 2
injuries..ii. H- 3

Hyoscyamus — hyoscine — hyoscyamine..............................v. A- 67

Hyperidrosis, treatment..............iv. A- 49

Hypertrichosis............................iv. A- 28

Hypnosis, reduction of body-temperature in.....................v. B- 52

Hypnotism, anæsthesia by..........iii. P- 1
history and therapeutic uses..v. A- 70
in ear disease...........................iv. C- 41
in gonorrhœal urethritis.......iii. E- 9

Hysteria, treatment.....................ii. C- 45

Hysterionica Baylahuen, therapeutic uses..............................v. A- 80

Hystero-epilepsy........................ii. A- 74

THERAPEUSIS.

Hip-joint Disease, Early Stage (*continued*).
op., iii. F-5; linear osteotomy; mechanical treat.; Blanchard's appar., iii. F-7; Thomas's splint, with traction, iii. F-9; Bartow's appar., iii. F-10; Phelps's meth., iii. F-11; portative-traction treat., with fresh air, sunlight, and mod. exercise, iii. F-13; excision of hip, late in disease; contin. extension with Lannelongue's immobilization appar. attached to a portable bed, iii. F-14; avoid silicate or plaster-of-Paris dressings without traction; always combine traction with immobilization, iii. F-15; resection: Kilpatrick's meth. of drilling the bone near the jnt., with absol. fixa., iii. F-16; Gibney's combination of tenotomy, myotomy, and osteotomy, to secure proper posit. of limbs, fixed dressings, iii. F-17.

Hydrargyrum, Toxic Effects.
Acute.
Mouth-washes of Condy's fluid and potass. chlorate, pot. chlor. int.; later, pot. iod. and careful feeding, v. A-64; sublimed sulphur, v. A. 134.
Chronic.
Potass. iod. and sulphur-baths, v. A-65.
Stomatitis.
Bichloride gargle, sol. (1 to 200) daily, v. A-59; pot. permang., gargle, v. A-104; resorcin, v. A-116.

Hydrochloric Acid, Toxic Effects.
Lavage of stomach, v. A-66.

Hymen, Diseases.
Annular.
Break down membr. under anæsthetic, ii. H-2.
Atresia.
Incision of membr., grad. withdrawal of tarry contents; antisep. irriga.; remain in bed for some days; ergot, ii. H-2.
Injuries.
Rupture with Hæmorrhage.
Acetate of lead and tampon, ii. H-3.

Hyperidrosis. (See Feet, Fetid Sweating.)

Hypertrichosis.
Shave surf. and apply sod. ethylate, the pat. being under infl. of chlorof.; successive ops., iv. A-28.

Hysteria.
Exercise in open air, fol. by drink of hot water, and galvaniza. of brain, ii. C-45; suspension treatment, ii. B-15; allyl tribromide, gtt. v, v. A-11; apomorphia, gr. 1-20 (0.003 grm.), hyp., in hyst. crisis (opisthotonos) to prod. emesis, v. A-19; sesquibromide of iron, v. A-53; tinct. gelsemii, v. A-54; hypnotism, v. A-76; uralium, for insomnia of h., v. A-137.

Hystero-epilepsy.
Faradism, applied along track of an aura, to arrest hyst. attacks; ovarian compression (?): pilocarpine, gr. 1/5 (0.008 grm.), in convulsive attacks, ii. A-70; removal of reflex cause; fibroneuroma of med. nerve; mod. dilat. of ut. and appl. of iodized phenol at night; ovariotomy, ii. A-74; hypnotism, v. A-76.

AUTHORS QUOTED.

Hydrogen Peroxide, Effect on Kidneys—D. M. Camman, v. A-66.

Hydronaphthylamine (Mydriatic) — Filehne, v. A-67.

Hydrothionuria—Müller, iv. K-59; Kahler, iv. K-7.

Hydroxylamin—
in Skin Diseases—P. J. Eichhoff, iv. A-51.
Therapeutic Uses—C. Binz, P. J. Eichhoff, v. A-67.

Hygiene—John B. Hamilton, C. H. A. Kleinschmidt, G. M. Guitéras.

Hymen, Diseases—
Annular—Sym, Milne Murray, Ballantyne, ii. H-2.
Atresia—F. Gross, Gustav Braun, E. A. Benton, O. P. Owen, ii. H-3.
Injuries—Mundé, Dagenais, ii. H-3.

Hyoscyamus — Hyoscine — Hyoscyamine — A. S. Barling, O. Klinke, Merck, Otto Dornblüth, Malfilatre and Lemoine, v. A-67; Jno. J. Weaver, Walter S. Colman and J. Taylor, S. W. Morton, Joseph S. Gibbs, W. A. Carey, v. A-68; W. A. Edwards, D. W. Prentiss, Magnan and S. Lwoff, E. B. Potter, v. A-69; Laborde, Magnan, A. H. Dodd, anon., v. A-70.

Hyperidrosis, Treatment—Anon., iv. A-49; Bardet, iv. A-5.

Hypertrichosis—Jamieson, iv. A-28.

Hypnosis—
Reduction of Body-temperature in — J. Drzewiecki, Mares and Hellich, v. B-52; Dumontpallier, Binet, Féré, Krafft-Ebing, Mares, Hellich, Drzewiecki, v. B-53.

Hypnotism, Anæsthesia by—Mesnet, Cloquet, Loysel, Joly, Guerineau, Esdaile, E. Haffter, Roth, iii. P-I; Radier, iii. P-2.
History and Therapeutic Uses—Braid, Mitchell, Bleuler, Forel, Moll, Bernheim, Björnström, Humbolt Library, Tuckey, Cory, Liébault, Binet and Féré, v. A-70; Felkin, L. Stembo, von Steinmetz, W. F. Robinson, Bernheim, Ringier, v. Krafft-Ebing, E. Bérillon, anon., W. C. Townes, Charcot, v. A-71; Bernheim, Liébault, Wetterstrand, v. A-72; Forel, Cajal, de Jong, Mesnet, Dumontpallier, v. A-73; Fort, Tillaux, Lengs, v. A-74; Van Renterghem and Eeden, Tuckey, Fontain and Sigand, Sperling, Danillo, Lengs, v. A-75; Voisin, de Jong, von Renterghem and Eeden, Sperling, Stembo, Bidon, Danillo, Bernheim, Strübing, Mendel, Briand, Bourruet Burot, Ringier, Tuckey, v. A-76; von Renterghem and Eeden, Tuckey, de Jong, Stembe, Forel, Bernheim, Van Renterghem and Eeden, Tuckey, Wetterstrand, Sperling, v. A-77; Forel, Wetterstrand, Tuckey, Rev. Arthur Tooth, Danillo, Bérillon, Liébault, anon., Ziemssen, Mendel, Lombroso, Meynert, Charcot, Bernheim, Van Renterghem, v. A-78; Liégeois, V. Corval, Moll, anon., v. A-79; Schuster, E. H., H. Bernheim, v. A-80.
in Ear Diseases—J. Burot, iv. C-41; Bernheim and Bérillon, iv. C-42.
in Gonorrhœal Urethritis—Paul Dugloux, iii. E-9.

Hysteria—
Treatment—Neftel, ii. C-45.

Hysterionica Baylahuen, Therapeutic Uses—G. Baillé, v. A-80.

Hystero-epilepsy—Rose, Courmont, Smith, ii. A-74; Engelhorn, Charcot, ii. A-75.

GENERAL INDEX.

Ichthyol, in skin diseases...........iv. A- 55
  therapeutic uses....................v. A- 80

Ichthyosis.................................iv. A- 13
  follicularis (psorospermose folliculaire végétante)...........iv. A- 13
  infantile, severe...................iv. A- 13

Icterus, adult...............................i. C- 31
  catarrhal, in children.............i. E- 26
  neonatorum ....ii. L- 15

Ileus...i. D- 8
  treatment..................................i. D- 8

Impotence and satyriasis...........iii. E- 4
  and varicocele.......................iii. E- 4

Incontinence of urine, after fistula operation ....iii. D- 25
  electricity in.........................v. C- 11

India, leprosy in.........................v. E- 32

Indicanuria...............................iv. K- 7

Indigo-calculi............................iv. K- 7

Inebriety, morphinism, and kindred diseases.........................iv. I- 1

Infancy and childhood, dietetics..ii. M- 1

Infant feeding, artificial..............ii. M- 2
  milk, asses'...........................ii. M- 15
    boiled...................................ii. M- 14
    cows' ....ii. M- 18
    red.......................................ii. M- 22
    sterilized ....ii. M- 16
  normal nutritive ratio..........ii. M- 12
  thirst, coffee-infusion...........ii. M- 22
  wet-nurse and foods.............ii. M- 13

Infant foods...............................ii. M- 1
  liquid foods...........................ii. M- 10
    Matzoon...............................ii. M- 10
    Murdock's.............................ii. M- 10
    Valentine's meat-juice.......ii. M- 11
  malt extracts ....ii. M- 1
    "Best" tonic........................ii. M- 3
    dry extracts..........................ii. M- 1
    Hoff's (Johann) malt.........ii. M- 3
    malted milk-powder...........ii. M- 3
    maltine.................................ii. M- 1
    Merck's dry extract..........ii. M- 2
    Trommer's malt and hops..ii. M- 2

THERAPEUSIS.

ICTERUS, CATARRHAL.
  Farad. curr. daily, both electrod. over gall-blad. or one on gall-blad., other to right of vertebr. post., i. C-31; pilocarpine, gr. 1-6 (0.01 grm.), once or tw. daily; incr. to gr. ¼ (0.015 grm.) after 4 or 5 days, i. C-32, v. A-109. *In children:* Farad. current, 5 min. appl. daily, 2 electr. in one hand applied in reg. of gall-blad., with curr. powerf. enough to excite strong contract. in abd. musc.; milk diet, i. E-26.
 NEONATORUM.
  Laxative (sweet-oil), if persistent, ii. L-16.

INCONTINENCE OF URINE.
  Galvanism, v. C-11, v. C-21; suspension treatment, ii. B-15; hypnotism, v. A-77; tinct. or succus rhois aromat. fol., 20 to 25 drops, v. A-117.

INFLUENZA.
  Antipyrin to allay spasmodic cough, v. A-15.

INSANITY.
 HYPOCHONDRIASIS.
  Hydrother., massage, gymnastics; avoid gynæcol. treat., ii. D-24.
 MELANCHOLIA.
  Opium treat. in *intellectual form*, ii. D-25; galvanic curr., ii. D-17; hypnotism, v. A-76; sulphonal, v. A-130 *et seq.*
 PARESIS, GENERAL.
  Setons, cautery, trephining and evac. of port. of subarachnoid fluid, ii. D-27; suspension, ii. D-28, ii. B-15.
 TREATMENT, GENERAL.
  ADMINISTRATION.
  Hygiene, personal experience; fully equipped hospital, ii. D-4; separate care of acute and chr. cases; training-schools for attendants; abolition of restraint; decorations, furniture, house effects: distinct hospital wards, ii. D-5; boarding-out patients; paying friends of pauper pat.; separate hosp. for curable pat. away from asylum, ii. D-8.
  ALIMENTATION.
  Dry peptones in Malaga wine: ℞ Raw, chopped meat, ℥iij¼ (100 grm.); powd. sugar, ℥j¼ (40 grm.); Malaga wine, ℥j¼ (40 grm.); tinct. cinnamon, ʒj¼ (5 grm.) — M. S.: To avoid tæniæ, use mutton, or bring chopped meat to a high temp. for 1 min. Meat-powders. For feeding by a tube: Eggs, 4; milk, 2 qts. (2 litres); Bordeaux wine, ℥viij (250 grm.); meat-powder, ℥j (30 grm.); salt ʒiiss (10 grm.) —M., ii. D-16.
  ELECTRO-THERAPEUTICS.
  Galvan. curr. and general faradization, ii, D-17.
  HYPNOTICS.
  In neurasthenic and hysteric, tonic and supportive treat.; in *alcoholic and general paresis*, bromides; hyoscyamine, gr. 1-64 (0.001 grm.); when due to *mental causes* and *overwork*, use rest-cure, electricity, baths, massage, etc.; if from *general diseases*, palliate causative condition; alcohol, ii. D-9; avoid alcohol if tending to alcoholism: morphia, chloral, amylene hydrate, ♏xv to lxxv (1 to

AUTHORS QUOTED.

ICHTHYOL—
  IN SKIN DISEASES—Kopp, Unna, iv. A-55; Baumann and Schotten, Zuelzer, Kopp, Unna and Nussbaum, iv. A-56.
  THERAPEUTIC USES—Von Hoffmann and Lange, Blittersdorf, v. A-80.

ICHTHYOSIS—
  FOLLICULARIS (PSOROSPERMOSE FOLLICULAIRE VÉGÉTANTE)—J. C. White, iv. A-13; Darier, Thibault, White, iv. A-14; Paget, White, Darier. iv. A-15.
  INFANTILE, SEVERE—Róna, iv. A-13.

ICTERUS, CATARRHAL, IN CHILDREN—Kraus, i. E-26.
  NEONATORUM—Keurer, Baginsky, Hofmeier, Currier, Scott, ii. L-15; Stryker, Hinkson, Newmann, ii. L-16.

ILEUS—
  TREATMENT—Curschmann, i. D-8; Köhl, Curschmann, Mahnert, Lund, i. D-9; Nothnagel, Küssmaul, Fitz, i. D-10.

IMPOTENCE—
  AND SATYRIASIS—Geo T. Welsh, iii. E-4.
  AND VARICOCELE—Jamin, iii. E-4.

INDIA—
  LEPROSY IN—Surgeon-General Geo. Birdie, v. E-32.

INDICANURIA—Churton, Chiari, Kahler, iv. K-7.

INDIGO-CALCULI—Churton, Chiari, Kahler, iv. K-7.

INEBRIETY, MORPHINISM, AND KINDRED DISEASES—W. R. Birdsall, iv. I-1.

INFANCY AND CHILDHOOD, DIETETICS—Louis Starr, W. M. Powell, ii. M-1.

INFANT FEEDING, ARTIFICIAL—
  MILK, ASSES'—Anon., ii. M-15.
    BOILED—Ed. Brit. Med. Journ., ii. M-14; Raudnitz, ii. M-15.
    COWS'—E. F. Brush, ii. M-18; Wood, ii. M-20; Arthur V. Meigs, ii. M-21.
    RED—Robert Main, ii. M-22.
    STERILIZED—Robert Stewart, ii. M-16.
  NORMAL NUTRITIVE RATIO—H. E. Stockbridge, ii. M-12.
  THIRST, COFFEE-INFUSION—Burggraeve, ii. M-22.
  WET-NURSE AND FOODS—C. Rüger, ii. M-13; Kehrer, Henoch, Escherich, Wolf, Biedert, Ad. Baginsky, Mellin, Löfflund, Lieke, Escherich, ii. M-14.

INFANT FOODS—
  LIQUID FOODS—Leeds, ii. M-10, 11.
  MALT EXTRACTS—Albert R. Leeds, ii. M-1; L. R. Fresenius, Leeds, ii. M-2; Fresenius, Leeds, ii. M-3.
  MILK FOODS—Leeds, ii. M-4, 5, 6, 7, 8; J. Lewis Smith, Leeds, ii. M-9.

INNOMINATE ARTERY, NEW METHOD OF LIGATING—Spencer, iii. I-7.

INOCULATION, PREVENTIVE—Rodet, iv. L-38; Bouchard, iv. L-40.

INSANITY—
  CLASSIFICATION, SUGGESTIONS FOR NEW—Macpherson, Hughlings-Jackson, ii. D-29.
  FOLLOWING SURGICAL OPERATIONS—C. T. Dent, Savage, Thomas, ii. D-21; Thomas, Polk, Landon Carter Gray, H. C. Wood, anon., ii. D-22; Mairet, ii. D-23.
  HOSPITALS—J. Batty Tuke, Brudenell Carter, ii. D-1; B. Tuke, Chapin, Newington, Hack Tuke, Manning, Krafft-Ebing, ii. D-2.
  HYPOCHONDRIASIS—Mendel, ii. D-23; Régis, ii. D-24.
  LYPEMANIA, SUSPENSION TREATMENT—Birdsall, ii. B-15.
  MANIA, ACUTE—
    SPINAL SYMPTOMS IN CONVALESCENT STAGE—H. Schermer, Jendrassik, Erb, Sachs, Meynert, ii. D-25.
  MELANCHOLIA—Meynert, Mendel, ii. D-24.
  OF OLD AGE—Rouillard, ii. D-29.
  OF PUBERTY—Mairet, ii. D-29.

GENERAL INDEX.

Infant foods (*continued.*)
- milk foods .... ii. M- 4
  - Anglo-Swiss .... ii. M- 6
  - boiled flour .... ii. M- 9
  - Franco-Swiss .... ii. M- 4
  - Loeflund's cream emulsion. ii. M- 5
  - malted milk .... ii. M- 8
  - Nestlé's milk food .... ii. M- 6
  - Wells and Richardson's .... ii. M- 6

Influenza, treatment .... v. A- 15

Inhumation and cremation .... v. F- 26

Innominate artery, new method of ligating .... iii. I- 7

Inoculation, preventive .... iv. L-33, 40

Insanity .... ii. D- 1
- classifications, suggestions for new .... ii. D- 29
- following surgical operations.. ii. D- 21
- hospitals .... ii. D- 1
- hypochondriasis .... ii. D- 23
- lypemania, suspension treatment .... ii. B- 15
- mania, acute .... ii. D- 25
  - spinal symptoms in convalescent stage .... ii. D- 25
- melancholia .... ii. D- 24
- of old age .... ii. D- 29
- of puberty .... ii. D- 29
- paresis, general .... ii. D- 25
  - early symptoms .... ii. D- 25
  - of long duration .... ii. D- 29
  - recovery from .... ii. D- 26
  - suspension in .... ii. D- 28
  - syphilis and .... ii. D- 29
  - trephining in .... ii. D- 27
  - trophic changes in .... ii. D- 27
- treatment, general .... ii. D- 3
  - administration .... ii. D- 3
  - alimentation .... ii. D- 16
  - electro-therapeutics .... ii. D- 17
  - hypnotics .... ii. D- 9
  - hypnotism .... ii. D- 17
  - opium treatment .... ii. D- 14
  - pilocarpine .... ii. D- 16
  - therapeutical observations.. ii. D- 15
- work and clinical study .... ii. D- 2

THERAPEUSIS.

INSANITY, TREATMENT, GENERAL, HYPNOTICS (*continued*).

5 grm.): paraldehyde, ♏xv to xc (1 to 6 grm.); morphia; sulphonal, gr. xv to lx (1 to 4 grm.); hyoscin, gr. 1-64 to 1-32 (0.001 to 0.002 grm.): urethane, gr xv to lx (1 to 4 grm.), ii. D-10; sulphonal, gr. xxx to lxxv (2 to 5 grm.): hypnone, gr. ¾ to ij (0.05 to 0.13 grm.), ii. D-11; Clouston's rules, ii. D-13; hypnotism, ii. D-17, 18, 19, 20, 21; opium treat., constipation relieved by cascara sagr., diarrhœa by tinct. coto, gtt. x to xx, ii. D-14. *Bell and Lemoine's meth.:* 1. Rest in bed for prolonged period. 2. Glass of Hunyadi water on rising, ev. morn. 3. Tinct. nuc. vom. in sm. dos. 2 t. d. bef. the two princip. meals. 4. Laudanum in progr. dos., begin. with gtt. v and incr. v ev. day until distinct improvement. Seldom have to exceed 200 drops daily, but may go beyond. 5. After marked physical improv., use spray-baths of short duration; forced alimentation by nose, using elast. cath.; wet pack: hyoscin to be avoided in cardiac disease, ii. D-15: pilocarpine, gr. 1-6 (9.04 grm.), hypod., ii. D-16; inhala. amyl nitrite and ether, ii. D-17: hyoscin, v. A-67; hyoscyamine, v. A-70; sulphonal, v. A-128, 130.

INSOMNIA.

Allyl hydrobromate, gtt. v, int., or hypod., v. A-11; amyl hydrate in capsules, v. A-12: boldoin, v. A-24; chloralamide; gr. xv to lx (1 to 4 grm.), v. A-32; hyoscin, v. A-67; hypnotism, v. A-79: paraldehyde, v. A-103; phenacetin, v. A-106; somnal, ℨss (2 grm.), v. A-123; sulphonal, v. A.128, 131, *et seq.;* uralium, v. A-137.

INTESTINES, DISEASES.

GUNSHOT WOUNDS.

Laparot. and intestin. sut., iii. C-28; keep stom. and bowels empty, siphon the stom. if necess., iii. C-29; Senn's infla. by hydrog. gas should be used with care; operate quickly; avoid eviscera., if possible; sut. wnds. in gut instead of excis., if poss.; avoid all op., even sut., in all wnds. so occluded by plast. mat. that intest. contents cannot be passed through them; operate on most serious wnds. first; if sm. intest. and stom. are both perforat., attend first to sm. intest.; only eviscerate when hæm. is uncontrollable, or when discharg. wnd. which cannot otherw. be found; if pat. too weak for rad. op., perf. laparot. and drain. rather than lap. and repair of int. wnd., iii. C-30; med. incis., exam. bowel by slipping it through the hands and not by eviscera. In all cases where laparot. is indicated make thorough exam. that slightest wnd. of int. or vessel shall not escape detec. and treat., iii. C.31; resection of intestines, iii. C-32.

ILEUS.

CURSCHMANN'S METHOD: In heart failure and collapse use hypod. inject. sol. sod.

AUTHORS QUOTED.

INSANITY (*continued*).

PARESIS, GENERAL—

EARLY SYMPTOMS—Charles F. Folsom, ii. D-25; Brush, ii. D-26.

OF LONG DURATION—Noyes, Sinkler and Brush, ii. D-29.

RECOVERY FROM—Wendt, ii. D-26; Voisin, ii. D-27.

SUSPENSION IN—E. Régis, Friese, ii. D-28.

SYPHILIS AND—A. Morel, Lavallee.

TREPHINING—T. Claye Shaw, ii. D-27; Ferrier, ii. D-28.

TROPHIC CHANGES IN—Féré, Leloir, and Déjerine, ii. D-27.

TREATMENT—

ADMINISTRATION— Batty Tuke, ii. D-3; R. Brudenell Carter, ii. D-4; Chapin, H. Hayes Newington, Batty Tuke, Brudenell Carter, ii. D-5; Lord Shaftesbury, Newington, Tuke, Krafft-Ebing, ii. D-6; Chiarugi, Pinel, Benjamin Rush, Esquirol, Sutherland, Krafft-Ebnig, Spencer, Bain, Maudsley, Fechner, Mundt, ii. D-7; Manning, D. Hack Tuke, ii. D-8.

ALIMENTATION—Lailler, ii. D-16.

ELECTRO-THERAPEUTICS — Jules Morel, Tigges Hayden, Hitzig, Schüle, ii. D-17.

HYPNOTICS—Lemoine, Chomel, Jastrowitz, ii. D-9; Jastrowitz, Wetherill, Obersteiner, Marandon de Montyel, ii. D-10; Otto Dornblüth, Séglas, Garnier, ii. D-11; Lojacono, Mairet, Mabon, Worcester, Kisch, Brush, ANNUAL 1889, ii. D-12; T. S. Clouston, i. D-13.

HYPNOTISM—Auguste Voisin, ii. D-17, ANNUAL 1889, Voisin, Yellowlees. Tuckey, Liébault, Langdon Down, Robertson, Bateman, Eugene Konrád; ii. D-18; Burot, ii. D-19; Voisin, Charcot, Forel, Bourru, Bernheim, Luys, Liébault, ii. D-20.

OPIUM TREATMENT—Theodore Ziehen, ii. D-14; Bell and Lemoine, ii. D-15.

PILOCARPINE—Willoughby, Lyon, ii. D-16.

THERAPEUTICAL OBSERVATIONS — Umpfenbach, ii. D-15; Kobert, Salgo, Kühlwetter, Kraus, ii. D-16.

WORK AND CLINICAL STUDY—Stanley Hall, Cowles, ii. D-2; Beunis, Thomas, Dent, Mairet, ii. D-3.

INTESTINAL OBSTRUCTION, ACUTE—

CLINICAL HISTORY—Treves, anon., Sottas, Yates, Brinton, Nothnagel, Albertson, Anderson, Alfred Obalinski, i. D-5; Spencer Wells, i. D-6.

DIAGNOSIS—Wahl, i. D-6.

TREATMENT—Anon., Baldy, i. D-6; Richardson, Goltdammer, Heard, anon., Otto Dansch, Ziemssen, Schuetter, I. D-7; Ziemssen, Curschmann, i. D-8; Köhl, Curschmann Mahnert, Lund, i. D-9; Nothnagel, Küssmaul, Fitz, i. D-10.

INTESTINES—

GUNSHOT WOUNDS — McGraw, iii. C-28; Senn, iii. C-30; Madill, Briddon, iii. C-32, 33.

INCISED WOUNDS—Alsberg, iii. C-28.

LYMPH-FOLLICLES IN THE—Stöhr, v. H-5; Patzelt, Stöhr, v. H-6; Heidenhain, Stöhr, v. H-7.

OBSTRUCTION, ACUTE—Annandale, iii. C-33; Annandale, Leichtenstern, Robson, iii. C-34; Gerter, Kümmel, iii. C-35; ANNUAL, 1889, iii. C-36.

GENERAL INDEX.

Insolation (see Thermic Fever).....i. H- 80

Insomnia, treatment....................v. A- 11

Intestinal obstruction, acute.........i. D- 5
  clinical history........................i. D- 5
  diagnosis..................................i. D- 6
  treatment.................................i. D- 6

Intestines, gunshot wounds.....iii. C-28, 32
  incised wounds........................iii. C- 28
  lymph-follicles in the............v. H- 5
  obstruction, acute..................iii. C- 32
  resection (enterectomy).....iii. C-31, 32
  rupture ....iii. C- 36

Intestines and peritoneum, diseases.i. D- 1

Intubation of the larynx.............iv. G- 1
  for foreign bodies....................iv. G- 8
  in chronic laryngeal stenosis.iv. G- 7
  in œdema of the glottis.........iv. G- 7
  methods of procedure............iv. G- 4
  new instruments......................iv. G- 1
    Annandale's laryngeal catheter iv. G- 1
    Tascher's short tubes.........iv. G- 2
    Bleyer's tongue-depressor..iv. G- 2
    Bleyer's tubes......................iv. G- 3
    Dennison's mouth-gag.......iv. G- 3
    Henrotin's mouth-gag.......iv. G- 3
  results ....iv. G- 6

Inula helenium, therapeutic uses..v. A- 81

Iodine—iodide of potash—iodism..v. A. 81

Iodoform ....v. B- 34
  as antiseptic................................iii. Q- 8
  action of......................................iii. Q- 8
  gauze...iii. Q- 8
  poisoning by.................................iii. Q- 8
  therapeutic uses..........................v. A- 82

Iodol, therapeutic uses..................v. A- 84

Ipecacuanha, idiosyncrasy to........v. A- 85

Jaborandi, therapeutic uses.........v. A- 85

Japan, vital statistics......................v. E- 29

Jaws, surgical diseases...............iii. J- 1
  ankylosis ....iii. J- 3
  fractures and dislocations......iii. J- 2
  necrosis ....iii. J- 1
  periostitis ....iii. J- 1
  resection, technique..............iii. J- 7

THERAPEUSIS.

INTESTINES, DISEASES, ILEUS, (*continued*).
chlor.; avoid purg.; use op. in large dos.; lavage of stomach; if no relief, puncture gut at diff. pts. with hypod. syr.; if sympt. of peritonit., avoid puncture; air insuffla., i. D-8. MAHNERT'S METH.: Inject. of oil; enema. by irriga., with small quant. of purg. added to the warm wat.; air inflat.; Lund's inflator; ac. carbon.; electr. when intestinal paresis; lav. of stom.; avoid metall. mercury, i. D-9. NOTHNAGEL'S METH.: Enemata, op. for collapse, fasting, no purg., lav. of stom., metall. mercury in fresh cases. Surgical treat. demanded on third day, i. D-10; enemata and insuffla. only in early stages; later, dangerous; laparot., limited incis., limited interfer. with abdom. contents, iii. C-34; disinfected towel under abdom. wall to retain intest. while passing sutures; avoid procrastination, iii. C-35.

INCISED WOUNDS.
Careful disinfect. of wnd., closure silk double sut. (1st series interrup., 2d series contin.), abd. wnd. closed, iodof. dress. and gauze, iii. C-28.

OBSTRUCTION, ACUTE.
Exploratory diagnostic incision: gentle and prop. applied enemata, i. D-6; opera. when stercorac. vom. begins (collapse no contra-indic.); prelim. laparot. in intussuscept., in symptoms of ac. strangula. and as last resort when severe sympt. re-appear after subsidence under opium; electric., colon filled with saline sol. and electrode in it, other electr. over abdom.; inflation; artific. infla. by gases; carbonic acid from siphons filled with gas; Schuetter's method. i. D-7; laparot., chlorof. anæsth., atrop., gr. 1-100 (0.00065 grm.). hypod., immed. after op. to dimin. shock, iii. C-34.

RUPTURE.
Laparot., enterectomy and enterorrhaphy; Lembert sut.; abd. incis. closed; antisept. dress.; sut. removed on 7th d., iii. C-36.

IODINE, TOXIC EFFECTS.
℞ Ac. sulphanilic., gr. lx to xc (4.0 to 6.0 grm.); sod. carb., gr. xlv to lx (3 to 4 grm.); water, ℥v (150 c. cm.) —M. Sod. bicarb., ʒiiss to iij (10 to 12 grm.), in 2 dos., within 24 hrs., v. A-82.

JAWS, SURGICAL DISEASES.

ANKYLOSIS.
Resect. of condyle of inf. max.; excis. of both angles of inf. max., iii. J-3; excis. of r. condyle; excis. of neck and cond. of inf. max., iii. J-4.

FRACTURES.
Martin's appl., Sauer's interdental wire splint, iii. J-2.
DISLOCATIONS.
Girin's meth., iii. J-3.

NECROSIS.
If from phosphorus, Jervell's op., iii. J-1; *if pyorrhœa alveol.*, use hydr. perox., iii. J-2.

AUTHORS QUOTED.

INTESTINES (*continued*).
  RESECTION — Rubio, Cotterill, iii. C-31; Madill, Briddon, iii. C-32; Briddon, iii. C-33.
  RUPTURE—Croft, iii. C-36.

INTESTINES AND PERITONEUM, DISEASES—W. W. Johnston, Henry B. Deale, i. D-1.

INTUBATION OF THE LARYNX — E. Fletcher Ingals, iv. G-1.
  FOR FOREIGN BODIES IN THE LARYNX — S. J. Metzger, iv. G-8; Sajous, iv. G-9.
  IN CHRONIC LARYNGEAL STENOSIS — Thomas Annandale, H. Ranke, Arpad Gerster, Dillon Brown, O'Dwyer, Ingals, iv. G-7; O'Dwyer, Ingals, iv. G-8.
  IN ŒDEMA OF THE GLOTTIS — Altamirano, Semeleder, Ingals, iv. G-7.
  METHOD OF PROCEDURE—J. Mount Bleyer, Francis Hubbard, O'Dwyer, Waxham, Ingals, iv. G-4; Hubbard, Ingals, iv. G-5; W. E. Casselberry, ANNUAL, 1889, iv. G-6.
  NEW INSTRUMENTS—
    ANNANDALE'S LARYNGEAL CATHETER — Thomas Annandale, O'Dwyer, iv. G-1.
    TASCHER'S SHORT TUBES—John Tascher, iv. G-2.
    BLEYER'S TONGUE-DEPRESSOR—J. Mount Bleyer, ANNUAL, 1889, iv. G-2.
    BLEYER'S TUBES — J. Mount Bleyer, iv. G-3.
    DENNISON'S MOUTH-GAG—Charles Dennison, iv. G-3.
    HENROTIN'S MOUTH-GAG — Ingals, Ferdinand Henrotin, iv. G-3.
  RESULTS—C. H. Hunter, Tascher, J. Mount Bleyer, F. E. Waxham, Ingals, iv. G-6; Dillon Brown, Massei, iv. G-7.

INULA HELENIUM, THERAPEUTIC USES—Kisselévitch, v. A-81.

IODINE — IODIDE OF POTASH — IODISM — Neumann, R. Lépine, Eymonnet, J. V. Shoemaker, Wile, Gerson, V. Gauthier, Röhmann and Malachowski, v. A-81; Buchheim, Ehlich, v. A-82.

IODOFORM—
  AS AN ANTISEPTIC — Von Jaksch, v. B-34; Tilanaus, Van Arsdale, iii. Q-8.
  ACTION OF—H. R. and J. R. Lefour, iii. Q-8.
  GAUZE—R. F. Weir, iii. Q-8.
  POISONING BY—Bowlby, Keetly, iii. Q-8.
  THERAPEUTIC USES — Caubrelle, P. Carles, v. A-82; W. W. Van Arsdale, Joseph Samter, Wagner and Rossbach, Samter and Retzlaff, Lewis S. Pilcher, Demme, W. C. Kloman, v. A-83; Koriandère, P. Carles, v. A-84.

IODOL, THERAPEUTIC USES—Dante Cervesato, Talenti, v. A-84.

IPECACUANHA, IDIOSYNCRASY TO—Ernst Sangree, v. A-85.

JABORANDI, THERAPEUTIC USES—J. B. Carrell, J. R. McCorkle, J. G. Marshall, Eliza Mitchell, I. N. Brainerd, L. B. Hayman, v. A-85.

JAPAN—
  VITAL STATISTICS—W. N. Whitney, v. E-29.

JAWS, SURGICAL DISEASES—
  ANKYLOSIS—F. Page, W. H. Bennett, iii. J-3; J. Dunlop, C. P. Harrigan, iii. J-4.
  FRACTURES AND DISLOCATIONS—C. Martin, C. Sauer, Richet, Coe, iii. J-2; Thiem, Girin, Charles E. Luce, Gray, Morris, Humphrey, iii. J-3.

GENERAL INDEX.

Jaws, surgical diseases (*continued*).

tumors ....iii. J- 4

cysts, dermoid....................iii. J- 4

cysts, maxillary..................iii. J- 4

electrolysis in......................iii. J- 6

epithelioma, paradental...iii. J-5, 7

osteoma ....iii. J- 5

osteosarcoma ....iii. J- 5

polypi...................................iii. J- 5

sarcoma, periosteal............iii. J- 5

statistics.............................iii. J-4, 5

Joints, anatomy...............................v. J- 5

diarthrodial joints, development v. J- 5

Joints, diseases............................iii. G- 23

arthritis, acute, treatment....iii. G- 23

suppurative.........................iii. G- 23

traumatic............................iii. G- 23

arthritis, chronic, treatment iii. G- 23

massage..............................iii. G- 24

spastic contraction.............iii. G- 24

synoviotomy ....iii. G- 25

arthritis, deformans.............iii. G- 29

arthritis, post-hemiplegic, bilateral...........................iii. G- 29

arthritis, rheumatoid............iii. G- 28

arthritis, suppurative, universal..................................iii. G- 29

THERAPEUSIS.

Jaws, Surgical Diseases (*continued*).

Periostitis.
Septic. of inf. max.. complic. by hæm.: Lig. of com. carot., iii. J-1.

Tumors.
Cysts, Dermoid.
Remov. by incis. of muc. memb., iii. J-4.
Cysts, Maxillary.
Extract tooth, incise tum., plug cav. with cott. soaked in "thymol-spirit" or iodof. gauze, fol. by freq. antisept. mouth-washing, iii. J-4.
Epithelioma, Paradental.
Inf. max.: Resect., iii. J-5; part. extirpa. of sup. max. and cheek, iii. J-7.
Osteoma.
Extirpa., iii. J-5.
Osteosarcoma.
Of l. sup. max. extend. to r. alv. proc.: Part. resect. of r. max. and total remov. of l. sup. max. except orbit plate, iii. J-5.
Polypi.
Basilar pharyngeal and naso-maxillary: Resect. of sup. max., iii. J-5.
Sarcoma.
Electrolysis, 12- to 15-min. sittings, 25 milliamp. at interv. of 8 d., iii. J-6.

Joints, Diseases.
Arthritis, Acute.
Salicylates, aconite, or digitalis for liquefac. and depressant indica. If costive, use calomel; acetanilid [gr. ij to xv (0.0125 to 1 grm.)], cantharid. loc. If delayed resolu. use sodium nitrate, iodide and carbonate, and ammon. carb.
Suppurative.
Early aspira. fol. by free incis. and drain., iii. G-23.
Traumatic.
Hot subl. sol. (1 to 1000), iii. G-23.

Arthritis, Chronic.
Rest, iii. G-23; dry earth and sulph., hydrogen and ac. carbon. gas, with rest. *Ac. salicyl.* (p. r. n.) for night-cries, pain, vomit, and incre. of loc. dis.; when spastic contract., inject into joint ½ to 1 syringeful of cocaine sol. (1 to 10), iii. G-24.
Massage.
In traumatic, rheumat., and gonorrh. cases, 15 to 20 mins. ev. d.; avoid forcible pass. mov.; use massage only in subac. or chr. stage, iii. G-24.
Surgical.
Op. if sequest. is formed; ev. oss. change form. granula., espec. caseous foc. without sequest.; ev. case of prim. tuberc. of soft parts.; if shoulder- or hip-joint, avoid op.; avoid op. in coxitis; delay op. in knee and elbow, iii. G-25.
Synoviotomy.
Bird's op., iii. G-25.
Arthritis Deformans.
Baths, massage, electricity, iodides, salicylates, and tonics, iii. G-29.
Arthritis, Rheumatoid.
Systematic use of the bath-waters, iii. G-28; sulphur, gr. v (0.32 grm.), with cream of tartar, gr. j (0.06 grm.), in lozenge, ev. night, v. A-135.
Arthritis Syphilitica.
If gumma, remove, iii. G-29.

AUTHORS QUOTED.

Jaws, Surgical Diseases (*continued*).

Necrosis—Funkhouser, Clement Lucas, J. G. Blackman, M. Culpin, Eklund, K. Jervell, iii. J-1; A. Lohmann, iii. J-2.

Periostitis—W. Herzog, Augt. Walker, iii. J-1.

Resection, Technique—L. Heusner, J. Wm. White, H. Scherck, Fergusson, R. del Castillo-Quartiellers, iii. J-7.

Tumors—
Cysts, Dermoid—Lannelongue, iii. J-4.

Cysts, Maxillary—Holger Mygind, Haderup, Magitot, Broca, iii. J-4; Albarran, Gérard Marchant, iii. J-5.

Electrolysis in—Mermod, iii. J-5; Roux, iii. J-6.

Epithelioma, Paradental—Polaillon, iii. J-5; Tomes, iii. J-7.

Osteosarcoma—Jalaguier, Santiago Veve, iii. J-5.

Polypi—Ignacio Plasencia, iii. J-5.

Sarcoma, Periosteal—Mermod, iii. J-5.

Statistics—Holger Mygind, Haderup, Magitot, Broca, iii. J-4; Eugene Birnbaum, Küster, iii. J-5.

Joints, Anatomy—

Diarthrodial Joints, Development—David Hepburn, v. J-5.

Joints, Diseases—

Arthritis, Acute Treatment—Illingworth, iii. G-23.

Suppurative—Mayo Robson, iii. G-23.

Traumatic—Hungate, iii. G-23.

Arthritis, Chronic, Treatment—Judson, McKenzie, iii. G-23; Hewson, Lovett, Lorenz, iii. G-24.

Massage—Greidenberg, iii. G-24; Riedel, iii. G-25.

Synoviotomy—Bird, iii. G-25.

Arthritis Deformans—Schmitt, Stark, iii. G-29.

Arthritis, Post-hemiplegic, Bilateral—Satterlee and Corning, iii. G-29.

Arthritis, Rheumatoid—Spender, Ord, iii. G-28.

Arthritis, Suppurative, Universal—Myers, iii. G-29.

Arthritis Syphilitica—Kirmisson, iii. G-28; Renaud, iii. G-29.

Bursitis Syphilitica—Buechler, iii. G-29

Cartilage, Floating—Claudot, Woodward, Jacobson, Alexander, Bell, Annual 1889, iii. G-27; Fehleisen, iii. G-28.

GENERAL INDEX.

Joints, diseases (*continued*).
    arthritis syphilitica..........iii. G- 28
    bursitis syphilitica...........iii. G- 29
  cartilage, floating..................iii. G- 27
    pathological.......................iii. G- 27
    traumatic..........................iii. G- 27
  cartilage, semilunar, separation of iii. G- 28
  hydrarthrosis, treatment......iii. G- 26
    intermittent.......................iii. G- 27
  hysterical affections............iii. G- 26
  myositis ossificans...............iii. G- 29
  tuberculosis of tendon-sheaths and bursæ.....................iii. G- 29
Juniper-berries, therapeutic uses..v. A- 85
Kakke (Beriberi)........................ii. C- 15
Karyophagus hominis...................i. C- 32
Keratosis (ichthyosis)(follicularis) iv. A 13
Kidney, diseases..........................i. G- 1
  abscess (pyonephrosis)..........i. G- 28
  anomalies...............................i. G- 19
  calculi...................................iii. E- 31
  cysts......................................i. G- 23
  floating...................................i. G- 20
  hydronephrosis......i. G- 26; iii. E- 33
  injuries..................................i. G- 28
  nephralgia (colic)..................iii. E- 31
  nephrectomy.........................iii. E- 33
  nephrolithotomy....................iii. E- 33
  nephrorraphy........................iii. E- 32
  physiology...............................i. G- 1
  surgical diseases...................iii. E- 31
  syphilis....................................i. G- 29
  tuberculosis.............................i. G- 29
  tumors.....................................i. G- 20
Kidneys, bladder, and supra-renal capsules, diseases..............i. G- 1
Kola-nut, therapeutic uses..........v. A- 85

THERAPEUSIS.

JOINTS, DISEASES (*continued*).

CARTILAGE, FLOATING.
Antisept. removal, iii. G-27.

CARTILAGE, SEMILUNAR, SEPARATION.
Curative, antisept. removal: *palliative*, mechan. appar., iii. G-28.

HYDRARTHROSIS.
Puncture and carbol. inject. (1 to 20) or tinct. iodi.; punc. fol. by antisept. irriga. with rigid antisept. precaut.; irriga. carbol. sol. (1 to 40); forcible percussion, or rupt. of sac in up. and inn. pt., fol. by massage, iii. G-26.

INTERMITTENT.
If malarial, use quin. and arsen., iii. G-27.

TUBERCULOSIS OF TENDON-SHEATHS AND BURSÆ IN WRIST.
Open and scrape joint with excis. of joint surf.
IN RETROCALCANEAN BURSA
Free incis., curette, iodof.; avoid surgical interfer., iii. G-29.

KIDNEY, DISEASES.

ABSCESS.
Incis., evac., lavage, i. G-28.
Suppurative perinephritis: incis., wash cavity and sinuses, pack with iodof. cott., i. G-29.

CALCULI.
Nephrotomy, extraction, iii. E-31; nephrolithotomy, iii. E-33.

FLOATING.
Well-adjusted pad; nephrorrhaphy only when grave sympt., i. G-20.

INJURIES.
Rest-treatment, i. G-28.

NEPHRALGIA (COLIC). Nephrotomy, iii. E-31; antipyrin sol. (50 %) hyp., internally, gr. xv (1 grm.), sevl. times daily, v. A-16; green-coffee sol., v. A-44.

SYPHILIS.
Mixed treatment, mercury essential, i. G-29.

TUMORS, CARCINOMA.
Incis., removal bef. sympt. of generalization, i. G-23.

AUTHORS QUOTED.

JOINTS, DISEASES (*continued*).

CARTILAGE, SEMILUNAR, SEPARATION OF—Annandale, iii. G-28.

HYDRARTHROSIS, TREATMENT—Falcox, Richardson, Cushing, Berne, Delbastaille, Henriett and Riedel, iii. G-26.

INTERMITTENT—V. Brincken, iii. G-27.

HYSTERICAL AFFECTIONS—Petersen, Esmarch, iii. G-26.

MYOSITIS OSSIFICANS—Kronecker, iii. G-29.

TUBERCULOSIS OF TENDON-SHEATHS AND BURSÆ—Wallich, Princeteau, Tournier, Schwartz, Reliquet, iii. G-29.

JUNIPER-BERRIES, THERAPEUTIC USES—Vogel, Goldschmid, v. A-85.

KIDNEY—

ABSCESS—Cleveland, Lucas, Audain, Gennes and Hartmann, Clado, Doyen, Albarran and Hallé, i. G-28; Albarran, Jones, i. G-29.

ANOMALIES—Dumur, Northrup, Carslaw, Potherat and Morderet, Poirier, i. G-19.

CALCULI—Ebstein, Nicolaïer, F. W. Kirkhaur, Ralfe and Godlee, iii. E-31.

CYSTS—Lejars. Davaine, i. G-33; Neisser, Thomas, Lejars, Stavely, Gratia, i. G-24; Newman, Ritchie, Holt, Bagot, Virchow, Loveland, i. G-25; Monod, Bantock, i. G-26.

FLOATING—Griffiths, Barry, Ferguson, Guyon, i. G-20.

HYDRONEPHROSIS—Edes, Griffiths, Lemoine, Lorain, i. G-26; Lorain, Grandmaison, Kappe, Oehme, Acker, Barrs, Cohn, Branfoot, i. G-27; F. Eklund, Stabell, iii. E-33.

INJURIES—Ryan, Gage, i. G-28.

NEPHRALGIA—L. McL. Tiffany, iii. E-31; Jordan Lloyd, iii. E-32.

NEPHRECTOMY—Socin, Julius Schmidt, W W. Keen, Knowsley Thornton, Clement Lucas, iii. E-33.

NEPHROLITHOTOMY—Le Dentu, Kendal, Franks—iii. E-33.

NEPHRORRHAPHY—Frank, Landau, Küster, Tuffier, Guermonprez, Guyon, Le Cuziat, iii. E-32.

PHYSIOLOGY—Eckard, Lorenz, i. G-1: Housemann, Grehant, Adami, Grainger Stewart, i. G-2.

SYPHILIS—Mauriac, Carmelo Andronico, i. G-29.

TUBERCULOSIS—Guyon, i. G-29: Kümmel Reilley, Gemmell, Ritchie, Anderson, i- G-30; Drumm, Bouneau, Stone, Baudet, Faure, Philip, Schmitt, Iscovesco, i. G-31; Strübing, Svensson, Eklund, Tuffier, i. G-32.

TUMORS—Saint Germain, i. G-20: Cornil, Davier, Pilliet, Girode, i. G-21: Lancereaux, Lincoln and Lamb, Mackenzie, i. G-22; Javaux, Princeteau, Graucher, i. G-23.

KIDNEYS, BLADDER, AND SUPRA-RENAL CAPSULES, DISEASES—James Tyson, Allen J. Smith, i. G-1.

KOLA-NUT, THERAPEUTIC USES—R. H. Firth, Heckel, v. A-85.

GENERAL INDEX.

Labor..........ii. J- 1
  anæsthetics in..........ii. J- 22
    antipyrin..........ii. J- 22
    hypnotic suggestion..........ii. J- 22
    strychnine poisoning..........ii. J- 22
  antiseptics in..........ii. J-22, 45
    corrosive sublimate..........ii. J- 24
    creolin..........ii. J- 24
    ergot..........ii. J- 25
  breech presentations (see also Forceps)..........ii. J- 20
  Cæsarean section (see also Craniotomy)..........ii. J- 13
    cases..........ii. J- 16
    indications..........ii. J- 13
  complications..........ii. J- 37
    bile-duct, rupture..........ii. J- 42
    brow presentations..........ii. J- 39
    cervix, occlusion..........ii. J- 40
    fœtal dystocia..........ii. J- 42
    fœtal malformations..........ii. J- 42
    gestation, prolonged..........ii. J- 41
    heart disease..........ii. J- 42
    hymen, rigid..........ii. J- 40
    hysterocele..........ii. J- 39
    missed labor..........ii. J- 41
    pelvic joints, relaxation and rupture..........ii. J- 41
    pelvis, kyphotic..........ii. J- 42
      obliquely-contracted, following scleroderma..........ii. J- 42
    prolapsus uteri..........ii. J- 39
    transverse presentations.....ii. J- 39
    tumors..........ii. J- 37
    vagina, laceration..........ii. J- 40
    vulva, hæmatoma..........ii. J- 41

THERAPEUSIS.

LABOR.

ANÆSTHETICS.

Antipyrin (50 % sol.) hypod., 1 to 3 inject. (gr. viiss—0.5 grm. *pro dos.*) or by enema, gr. xxx (2 grm.); by mouth, gr. xv to xxx (1 to 2 grm); hypnotic suggestion, ii. J-22.

ANTISEPTICS.

1. Abdom. palpation; avoid too freq. vag. exam. during 1st stage. 2. Evac. ut. completely after labor and abortion. 3. To insure drainage, do not insist too strongly on horiz. posture. 4. Repair all perineal tears of any size. 5. To prevent ophthalm. neon., wipe off secret. from eyes at moment of birth; later, irrigate eyes with subl. sol. (1 to 3000). 6. Antisep. lig. and dress. of cord.; dry dress. Daily irriga. of genital tract, includ. ut. cav., for 6 d., with 1 quart (1 litre) hot water at 40° R. (122° F.), mollin for exam.; creolin sol. (2 %) irriga. of genit. tract; subl. sol. (1 to 3000); carbol. sol. (3 %) ev. 2 hrs.; ii. J-23; creolin sol. (2 %), ii. J-24; subl. sol. (1 to 5000 or 1 to 8000); ergot as prophylactic, ii. J-25; subl. sol. (1 to 4000); sat. aq. sol. naphthol; oakum dipped in subl. sol. to receive lochia; dry subl. cotton dress. to cord; lemon-juice instead of arg. nitr. to prev. ophthal. Liége meth.: On admiss., genl. bath.; during lab., vag. irriga. before ev. exam. with creolin sol. (3 %) through glass tube, to cervix; labia closed to distend vag. and oblit. rugæ; 1 to 2 qts. (1 to 2 litres) of sol. for each irriga.; irriga. after placenta is detached; repeat reg. during 1st few days of puerp. period; mollin as lubric., ii. J-45; creolin sol., gtt. xij to xv to 1 qt.), v. A-49; hydrarg. biniod. sol. (1 to 4000), v. A-60.

BREECH PRESENTATIONS.

Cephal. version during pregn. by abdom. manip., ii. J-20; Mar's meth. of extraction; Deveater's meth., Chassagny's *défenseur périnéal* of moleskin; deep perineal sut. bef. pass. of head.; episiotomy, ii. J-21; forceps. to breech, ii. J-9.

CÆSAREAN SECTION.

In pelvic contractions: 1. In primip. with ceph. present., version is contra-ind., while in multip. version only indic. when favor. condit., intact bag of wat., wide and dilat. os extern., mobile head, absence of stretching of collum uteri. 2. Premat. lab. in subseq. preg., ii. J-14. 3. When pat. elects op., espec. in multip. with prev. bad labors; in primip., Cæs. sect. only when labor has begun and rupture of ut. threatens. In all other cases perfor. of living child is indiced. *Osteomalachia and rachitis:* Porro's op. after failure of version, if living fœt.; Fritsch's op. (simple, interrup. sut. through all the tissues); omit disinfect. of ut. cav.; preventive compress. of cervix by rubber

AUTHORS QUOTED.

LABOR—

ANÆSTHETICS IN—

ANTIPYRIN—Seeligmann, Winckel, Misrachi, J. Baran, Lutaud, Talbot Jones, J. O. Van Winkle, Pinzani, ii. J-22.

HYPNOTIC SUGGESTION—S. Ramon Cajal, Fanton, de Grandchamps, ii. J-22.

STRYCHNINE POISONING—Avrard, ii. J-22.

ANTISEPTICS IN—Charles J. Cullingworth, ii. J-22; Charles White, Deipser, Galabin, Döderlein and Günther, Steffeck, Poten, ii. J-23; Döderlein and Günther, Mermann, Steffeck, Thorn, ii. J-24; Pinard, Davis, Traipont, ii. J-45.

CORROSIVE SUBLIMATE—Anon., Stadtfeld, Sänger, ii. J-24; Garrigues, ii. J-25.

CREOLIN—Cameron, Attfield, Esmarch, Koch, Eisenberg, Kortüm, Traipont, Rotter, Rosenbach, ii. J-24.

BREECH PRESENTATIONS—Gaulard, Budin, Torngren, ii. J-20; Mars, anon., John Bartlett, Deveator, Smellie-Veit, Chassagny, Marduel, Edward B. Weston, ii. J-24.

CÆSAREAN SECTION.

CASES — Wolczynski, Sänger, S. Braun, Mardurowicz, Van der Mey, ii. J-16; W. T. Lusk, Simon, Bouilly, Nieberding, H. H. Vincke, Wolczynski, H. Charles, W. Goodell, J. M. Hays, C. J. Mueller, M. U. O'Sullivan, P. Meyer, H. Adolphi, F. Skutsch, M. Cameron, Engstrom, Champneys, Joseph E. Allen, Falaschi, ii. J-17.

INDICATIONS—Leopold, Caruso, ii. J-13; Leopold, Carl Braun, Piskacek, Breisky, ii. J-14; Caruso, Porro, Breisky, Gustav Braun, Fritsch, Sänger, Veit, Leopold, C. J. Müller, ii. J-15; H. Thomson, Faldschi, Bouilly, Champneys, ii. J-16.

COMPLICATIONS—

BILE-DUCT, RUPTURE—P. C. Williams, Carl Braun, ii. J-42.

BROW PRESENTATIONS—M. E. Bonnaire, King, Wigand, ii. J-39.

CERVIX, OCCLUSION—Santiago Veve, A. F. Hodnett, A. W. Strickland, Misrachi, Geyl, W. F. Lippitt, Jr., Thierry, ii. J-40.

FŒTAL DYSTOCIA—H. Laird Pearson, John Phillips, H. A. Cooper, Hubert Peters, T. J. Hudson, ii. J-42.

GESTATION PROLONGED—Giovanni Cosentino, ii. J-41.

HEART DISEASE—D. Berry Hart, ii. J-42.

HYMEN, RIGID—Charboux, Thierry, Budin and de Sinéty, ii. J-40.

HYSTEROCELE—Adams, ii. J-39.

MISSED LABOR—W. A. Ellisen, T. C. Smith, ii. J-41; Goth, ii. J-42.

PELVIC JOINTS, RELAXATION AND RUPTURE—Remy, Stoltz, Dührssen, Martin, Olshausen, Gusserow, ii. J-41.

PELVIS, KYPHOTIC—Treub, Freund, Breisky, ii. F-32.

OBLIQUELY-CONTRACTED, FOLLOWING SCLERODERMA—Torggler, ii. J-42.

PROLAPSUS UTERI—Zinsmeister, ii. J-39; V. Erlach, Budin, ii. J-40.

TRANSVERSE PRESENTATIONS—G. Eustache, Gery, Walter, L'Echryse, Danyan, Joulin, Naegelé, Meissner, ii. J-39.

GENERAL INDEX.

Labor, complications (*continued*).
- craniotomy..........ii. J- 10
  - Cæsarean section *versus*......ii. J- 12
  - cephalothrypter or cranioclast ii. J- 11
- decapitation..........ii. J- 13
- forceps..........ii. J- 7
  - after-coming head..........ii. J- 8
  - breech presentations..........ii. J- 8
  - relation to idiocy..........ii. J- 8
- funis..........ii. J- 46
  - amniotic umbilicus..........ii. J- 46
  - coiling of..........ii. J- 46
  - knots in..........ii. J- 46
  - mummification..........ii. J- 47
  - omphalorrhagia neonatorum spontanæ..........ii. J- 48
  - prolapse..........ii. J- 46
  - short..........ii. J- 46
  - stump, treatment..........ii. J- 47
- membranes, retained..........ii. J- 33
- occipito-posterior position.......ii. J- 19
- physiology..........ii. J- 1
  - after-birth, mechanism of stages..........ii. J- 4
  - anterior rotation..........ii. J- 3
  - coccyx, function..........ii. J- 4
  - determining cause of labor..ii. J- 1
  - dry labor..........ii. J- 1
  - fœtal heart-tone in normal labor, absence of..........ii. J- 1
  - Kraske's operation, labor after ii. J- 3
  - levator ani, function..........ii. J- 3
  - membranes, functions..........ii. J- 1
  - second stage, extension of fœtus in..........ii. J- 1
  - shoulder, delivery of..........ii. J- 3
- placenta, adherent..........ii. J- 32
  - hæmorrhage from premature detachment..........ii. J- 31
  - prolapse..........ii. J- 31
  - retention..........ii. F-44, ii. J- 31

THERAPEUSIS.

LABOR, CÆSAREAN SECTION (*continued*).
tube; best time after occur. of ut. contract., ii. J-15; ut. incis. in ant. post. direct. through fundus., to av. plac. and lower ut. segmt.: silk sut. sterilized, best; avoid use of chromic-ac. gut, silkworm gut, or silver wire, bec. not absorbed; carbol.-ac. gut, danger of infection, too rapid absorption. *To prevent subseq. concept.*, lig. of Fallop. tubes, ii. J-16.

COMPLICATIONS.

BROW PRESENTATIONS.
Thigh-pressure; Wigand's meth. of version; rectifica. in lateral posture. before lab. or early in first stage, ii. J-39.

CERVIX, OCCLUSION.
Abdom. hysterotomy; central pressure to cervix; incision, ii. J-40.

FŒTAL MALFORMATIONS.
Hydrocephalus: Immed. punct. of head or craniot. Op. of Huevel and Tarnier: After podal. vers., open spin. laminæ, meninges punct. with trochar. *Ascites:* Punct. through neck, thorax., and diaphr. *Twins, locking of heads:* Press. to head of second child; removal of first head, forceps to second, ii. J-43.

HYMEN, RIGID.
Operation, ii. J-40.

TUMORS.
Preserve life and health of mother, but, when despaired of, consider life of fœtus. *Fibro-myomata:* Induct. of prem. lab., reposit. of tumor, myomotomy, Müller's ablation. If poss., push tumor up, apply forceps to head, ii. J-37. If on lips of os. ut., remove at once: also if discov. during or after lab. If polypoid, att. to corpus ut, remove immed. after evac. of ut., unless pat. condit. positiv. contra-indic. *Subserous sessile myomata of corpus and fundus ut.:* Induct. of prem. lab., or laparot., with remov. of tumor; ergot in puerperium. If exam. under anæsth. shows ut. and tum. to be movable, and suffic. pedicle can be found, do laparot. *If immobil. of collum uteri*, abortion or Cæsar. sect. at term. *Exudate into paramet.:* Craniot.; massage, expectant if ⅔ of pelvis free of exuda.; if ½ clear, abort. if Cæsar. sect. declined by mother. *Dermoid cyst:* Removed, ii. J-38.

VULVA, HÆMATOMA.
Tampon to tumor, if hæmorrhage, ii. J-41.

CRANIOTOMY.
Less degrees of pelvic contraction: If axis-traction forceps had been used to limit of safety, vertex might be perfora. without remov. forceps, using forceps as tractor. *In high degrees of contraction:* (1) podal version, extract. of body; (2) perfora. through roof of mouth: (3) cephalotripsy of after-coming head; (4) extract head with cephalotribe, or by traction on body or lower jaw combined with

AUTHORS QUOTED.

LABOR, COMPLICATIONS (*continued*).
- TUMORS—Fehling, Phillips, Müller, Goodell, Turgard, ii. J-37; Felsenreich, Sydney Turner, Depaul, Felsenreich, P. Müller, Gelstrom, Tuxen, ii. J-38.
- VAGINA, LACERATION—J. Matthews Duncan, ii. J-40.
- VULVA, HÆMATOMA—Chasan, ii. J-41.

CRANIOTOMY—Archibald Donald, ii. J-11; Galabin, Herman, W. Duncan, Braxton Hicks. John Philips, ii. J-11.
- CÆSAREAN SECTION VERSUS—Egon Braun von Fernwald and K. Herzfeld, Carl Braun, Grapow, Edward Reynolds, ii. J-12.
- CEPHALOTHRYPTER OR CRANIOCLAST—Credé, Zweifel, Busch, Braun, Breisky, ii. J-11; Auvard, Bar, Tarnier, ii. J-12.

DECAPITATION—Richard Stein, Carl Braun, Thomson, Schultze, Davis, Budin, Thomson, Budin, Tarnier, Narich, ii. J-13.

FORCEPS—Samuel Sloan, Henry D. Fry, Assalini, G. Cadogan-Masterman, Münchmeyer, ii. J-7; Naegle, ii. J-8.
- AFTER-COMING HEAD—Travis Carroll, H. C. Coe, ii. J-8.
- BREECH PRESENTATIONS—Charles W. Townsend, ii. J-8; J. Stedman, N. King, ii. J-9.
- RELATION TO IDIOCY—Winkler and Bollaan, David de Beck, Fletcher Beach, J. Langdon Brown, ii. J-8.

FUNIS—
- AMNIOTIC UMBILICUS—Widerhofer, ii. J-46.
- COILING OF—F. Merkel, ii. J-46.
- KNOTS IN—M. Cameron, ii. J-46.
- MUMMIFICATION—Casper, Frederick W. Lowndes, ii. J-47.
- OMPHALORRHAGIA NEONATORUM SPONTANÆ—Tross, Llewellyn Eliot, ii. J-48.
- PROLAPSE—H. S. Haid, ii. J-46.
- SHORT—J. D. Rouse, X. O. Werder, Volturiez, J. Davidson, ii. J-46.
- STUMP, TREATMENT—Cholmogoroff, Baginsky, ii. J-47.

MEMBRANES, RETAINED—Eberhardt, Cameron, Ahlfeld, Lazarewitsch, Olshausen, Credé, Kaltenbach, Rechlen, A. A. Henske, Martini, ii. J-33.

OCCIPITO-POSTERIOR POSITION—Bataillard, Tarnier, Smellie, Velpeau, Playfair, Mattei, Loviot, Tarnier, ii. J-19; Depaul, Blot, Bailly, T. Griswold Comstock, Budin, Ribemont, ii. J-20.

PHYSIOLOGY—
- AFTER-BIRTH, MECHANISM OF STAGES—H. St. Clair Gray, T. Arthur Helme, Berry Hart, Simpson, Foulis Craig, Freeland Barbour, D. Berry Hart, Helme, ii. J-4; Wilhelm Zinsstag, Credé, Schultze, Duncan, Ahlfeld, Zinsstag, Ahlfeld, ii. J-5; Zinsstag, Ahlfeld, ii. J-6.
- ANTERIOR ROTATION—Frommel, Olshausen, Schatz, Hofmeier and Schwarz, ii. J-3.
- COCCYX, FUNCTION—Henry D. Fry, ii. J-4.
- DETERMINING CAUSE OF LABOR—Girin, Preyer, Buniva, Vauquelin, Labruhe, Pinard, Gauthier, Mya, Graziadei, ii. J-1.
- DRY LABOR—H. R. Coston, John Trumbull, G. T. Thomas, B. J. Wetherby, ii. J-1.

GENERAL INDEX.

Labor, Porro's operation..........ii. J-12, 16
- **statistics ....ii. J- 44**
- **uterus, inversion.....................ii. J- 33**
  - **rupture.... ....ii. J- 34**
- **version....................................ii. J- 9**
  - **cephalic.................................ii. J- 10**
  - **prophylactic, in contracted pelvis..............................ii. J- 9**

Lacquer poisoning.......................v. A- 86

Lactic acid, therapeutic uses........v. A- 86
- **Uffelman's test.........................i. C- 7**

Lactose, therapeutic uses.............v. A- 86

Landry's paralysis.......................ii. B- 30

Lanolin, therapeutic uses.............v. A- 86

Larynx, diseases..........................iv. F- 1
- **carcinoma..............................iv. F- 10**
  - **laryngectomy......................iv. F- 10**
    - **Fowler's artificial larynx.iv. F- 12**
    - **normal compensatory voice after.............................iv. F- 12**
- **foreign bodies..........iv. F-18, iv. G- 8**
  - **intubation...........................iv. G-7, 8**
- **laryngitis, acute.....................iv. F- 1**
- **leprosy...................................iv. F- 6**
- **lupus......................................iv. F- 6**
- **morbid growths.......................iv. F- 6**
  - **diagnosis...........................iv. F- 9**
  - **etiology and pathology.......iv. F- 6**
  - **treatment...........................iv. F- 9**
    - **Scheff's curette...............iv. F- 10**
- **œdema....................................iv. F- 2**
- **operations..............................iv. F- 10**
  - **laryngectomy—extirpation.iv. F- 10**
  - **statistics............................iv. F- 14**
  - **technique...........................iv. F- 15**
  - **thyrotomy or laryngo-fissure iv. F- 18**
  - **tracheotomy (*quod vide*)....iv. F- 19**
- **paralyses ....iv. F- 16**
- **stenosis...................iv. F-17, iv. G- 7**
- **trans-illumination.................iv. F- 33**
  - **Blinsdorf's diaphanoscope..iv. F- 35**
  - **Freudenthal's electric lantern iv. F- 34**
  - **Voltolini's electric lantern.iv. F- 33**

THERAPEUSIS.

Labor, Craniotomy (*continued*).

supra-pub. press. Braxton-Hicks's cephalotribe; Busch's cephalothrypter; Braun's cranioclast; Breisky's cephalothrypter, ii. J-11. Auvard's "combined cephalic embryotome:" 1. Craniot. on liv. child to be substituted by Cæsar. sect. only when mother elects op. that will save child. 2. Limit for rel. indica. of C. section is below 3 3-10 in. (8.5 cm.). 3. If conjugate diam. over 3 1-10 inches (8 cm.), elect craniot. when deliv. of liv. ch. without danger to mother impossible, or birth of liv. ch. imposs. 4. If choice between C. section and craniot., even if pat. desires C. section, perform craniot.; prem. labor at fut. pregn. 5. Porro's op. in absol. contract. of pelv., osteomalacia in septic cases in which C. section is indic. on account of pelv. contraction.

Decapitation.

In neglected shoulder presentation, try Carl Braun's blunt hook (small neck); Schultze's sickle-shaped knife (large neck); Tarnier's embryotome; Narich's embryotome, ii. J-13.

Forceps.

After-coming head in breech present., ii. J-8; apply to breech if necess.. ii. J-9.

Funis.

Prolapse.

Reduction in knee-chest position, ii. J-46.

Stump.

Plaster dressing to favor mummification; dry cotton and iodof.; avoid ac. carbol., ii. J-47.

Membranes, Retained.

Expectant: If placenta not away in 1½ to 2 hrs., use Credé's meth.; remove only port. of membr. that protrude into vag.; keep vag. aseptic by repeat. irriga.; give ergotin to hasten separa. of adherent membr., ii. J-33.

Occipito-posterior Position.

If no rotation occur, introd. hand to dislodge occiput from sacrum.: if further rotat req., use Tarnier's forceps; Tarnier and Loviot's meth. (ear), ii. J-19. Rota. and tract. at same time. If child dead, and extract. difficult, craniot., ii. J-20.

Placenta, Hæmorrhage from Premature Detachment.

Forceps or version, ii. J-31.

Retention.

Major's procedure, ii. J-31. inject. of cold or hot water, or vinegar, into umbil. vein. *If anteflexions*, avoid ergot; use expectant plan, with deliv. of after-birth, ii. J-32.

Porro's Operation.

Indicated in absolute contraction of pelvis, osteomalacia, septic cases with contraction, ii. J-12; twin pregn. with carcinom. of cervix, ii. J-16; contracted pelvis and rickets, ii. J-18.

Uterus, Inversion.

Taxis, ii. J-33; hot-water irriga., and taxis; reduction under hypnotic suggestion, ii. J-34.

Rupture.

In *plica vesico-uterina*, use forced anteflex. of ut., compression-bandage of gauze

AUTHORS QUOTED.

Labor, Physiology (*continued*).

Fœtal Heart-tone in Normal Labor, Absence of—M. Bar, ii. J-1.

Kraske's Operation, Labor after—Lithotzky, ii. J-3.

Levator Ani, Function—Dickinson, ii. J-3.

Membranes, Functions—J. H. Emerson, ii. J-1.

Second Stage, Extension of Fœtus in—Litzmann, Schroeder and Stratz, Hoffheinz, G. Ernest Herman and Charles Goullet, ii. J-2.

Shoulder, Delivery—Leonet, ii. J-3.

Placenta, Adherent—Berry Hart, ii. J-32.

Hæmorrhage from Premature Detachment—R. T. E. Davies, Wilmer Brinton, ii. J-31.

Prolapse—Münchmeyer, Wm. H. Lathrop, ii. J-31.

Retention—S. Remy, Michon, Major, Aldini, Alf. Liégard, H. W. Freund, Ahlfeld, ii. J-32.

Porro's Operation—Braucamst, ii. J-16; Blundell, Chalot, John Bartlett, Frank, D. Berry Hart, W. Sutugin, A. L. Galabin, Maria Gommeri, Kufferath, Wyder, W. S. Robertson, J. J. Black, William Duncan, Sacré, ii. J-18.

Statistics—Ehler, Schauta, ii. J-44; Joseph Price, Goodell, Pinard, Davis, Fraipont, Kufferath, ii. J-45.

Uterus, Inversion—Vincent, Arthur Jefferson, ii. J-33; N. Guhman, Walter Hutchinson, Jefferson, Gustav. Braun, George E. Fell, W. Huber, A. Bergstrand, Isaac E. Taylor, ii. J-34.

Rupture—Leopold Veit, Piskacek, Winckel, Kaltenbach, Hofmeier, ii. J-34; Piskacek, ii. J-35; Breisky, Piskacek, Fleischmann, Felsenreich, von Erlach, Breus, Peter, v. Bandl, Lihotzky, Veit, Schroeder, Ingersler, Charles A. L. Reed, Stanislaus Braun, Gustav. Braun, Karl A. Herzfeld, Couder, Bousquet, Deutsch, ii. J-36; Oscar Schaeffer, Piltz, T. Tradon, Henry C. Coe, T. L. McDermott, A. A. Matheson, Finger, H. C. Owen, William T. Lusk, Winckel, A. Withers Green, Herzfeld, ii. J-37.

Version, Cephalic—W. Clayton Dukes, S. T. Yount, ii. J-10.

Prophylactic in Contracted Pelvis—Nagel, Gusserow, James T. Simpson, Alfred Dührssen, Litzmann, ii. J-9; Litzmann, Duhrssen, Gusserow, A. Martini, Tarnier, Bumm, ii. J-10.

Lacquer Poisoning—D. W. Prentiss, v. A-86.

Lactic Acid, Therapeutic Uses—Wm. B. Eager, v. A-86.

Lactose, Therapeutic Uses—Germain Sée, v. A-86.

Laonein, Therapeutic Uses—A. Gottstein, Koch and Wolffhügel, v. A-86; E. Stern, v. A-87.

GENERAL INDEX.

Larynx, diseases (*continued*).
tuberculosis..........................iv. F- 2
etiology and pathology..........iv. F- 2
treatment..........................iv. F- 4

Larynx, trachea, and œsophagus, diseases..........................iv. F- 1

Lateral curvature, treatment......iii. F- 38
Barwell's apparatus............iii. F- 39
Beely's apparatus...............iii. F- 41
Hoffa's apparatus...............iii. F- 42
Hoffa's suspension-swing......iii. F- 43

Lavender-oil, antiseptic action.....v. A- 87

Lead acetate, therapeutic uses......v. A- 87

Lead poisoning, electricity in.......v. C- 22

Legal medicine and toxicology.....iv. J- 1

Lepra—Leprosy..........................iv. A- 34
etiology and pathology..........iv. A- 34
rapid spread of.....................iv. M- 7
treatment..........................iv. A- 37

Leucocytes, functions of..............v. H- 2

Leucocythæmia..........................ii. E- 11
etiology and pathology..........ii. E- 11
treatment..........................ii. E- 12

Leucomaines in blood.................iv. L- 39
methylamine........................iv. L- 39
plasmaine..........................iv. L- 39

Leucoplakia buccalis..................iii. J- 26

Lichen ruber—lichen planus......iv. A- 15
differential diagnosis............iv. A- 18
microscopical examination and pathology......................iv. A- 20
treatment..........................iv. A- 19

Ligaments, anatomy....................v. J- 6

THERAPEUSIS.

Labor Uterus, Rupture (*continued*).
(appl. direct to ut. within peritoneal cav.), and iodof.-gauze tampon at site of tear (of ut. and vag.). ii. J-34. 6. Deliver child so as best to spare mother; op. to dimin. vol. of child indicated in fore-going or after-coming head; even when pelvic contract. is slight, perforation; in transverse presentations, embryotomy preferred to version. When presenting part has entered pelvis, and rest of body is in abd. cav., complete labor through nat. passages. 7. When ch. entirely born into abdom. cav., perform antisept. laparot.; hospital op. or skilled reliable assistants. 8. Bef. and after deliv. *per vias nat.*, irrigate vag. and ut. (site of tear) with sol. ac. carbol. (2%): approximate edges from within and from without; iodof.-gauze tampon in vag. (to be remov. in 8 to 10 d.). 9. When ch. is deliv. by abd. sect., cleanse abd. cav., arrest hæm., try to suture rent; place rope of iodof. gauze in ut. and vag.; compress site of tear, after firm approx. of edges, by a second rope whose end is conducted out of lower angle of abd. wnd. *Incomplete*, iodof. gauze tamponade; *complete*, drain. by iodof. wicking, ii. J-35. Laparotomy. *Incomplete*, antisept. irriga., rest; *complete*, abd. sect., as soon as possible, ii. J-36. *Due to hydrocephalus*, craniot., gauze drainage, ii. J-37.
Version.
In generally-contracted pelves, with presentation of post. parietal bone, prolapse of funis (after failure of manual reposit.), transverse presentations, make version and extract. with forceps. In *high-forceps op.*, lateral incis. of *introitus vaginæ* with antisep. Induct. of prem. lab. in subseq. pregn., if prev. lab. resulted in dead children, ii. J-90. Expectant attitude; Duhrssen's meth., ii. J-10.

Lacquer Poisoning.
Sol. of ac. carbol. (1 %) in eq. pts. linseed-oil and liq. calcis, v. A-86.

Larynx, Diseases.
Carcinoma.
Laryngectomy, iv. F-10; artificial larynx, iv. F-12; thyrotomy, iv. F-18; partial extirpa.; resection, iv. F-14.
Foreign Bodies.
Intubation, iv. G-8; tracheotomy, iv. F-18.
Laryngitis, Acute.
Idiopathic phlegmonous or submucous: Purgation, ice, leeches, vesica.; scarifica. if œdema threatens, iv. F-1. Inhala., bals. Peru, v. A-21; massage, v. A-90.
Morbid Growths.
Crushing: ac. chromic.; thyrotomy; laryngotomy, iv. F-7; abscission; ablation; ac. chromic., iv. F-8; ac. lactic.; curette, iv. F-10.
Stenosis, Chronic.
Intubation, iv. G-7; dilatation after tracheot., iv. F-17; thyrot.; laryngot.; Billroth's op., iv. F-15.
Tuberculosis.
Ac. lactic. loc., curette, iv. F-4; galvano-caut.; electrol.;

AUTHORS QUOTED.

Larynx, Diseases—

Carcinoma — Newman, A. Gouguenheim, iv. F-10.

Laryngectomy — E. Boccomini, Labus; iv. F-10; George R. Fowler, iv. F-11; T. R. French, iv. F-12.

Fowler's Artificial Larynx—Fowler, Gussenbauer, iv. F-12.

Normal Compensatory Voice after—Strübing, Schmid, iv. F-12; Landois, iv. F-13; Charles Symonds, Greville Macdonald, Stoerk, iv. F-14.

Foreign Bodies—H. R. Wharton, iv. F-18.

Intubation for—S. J. Metzger, iv. G-8; Sajous, iv. G-9.

Laryngitis, Acute — Moure, Sokolowski, B. Fraenkel, L. Emmett Holt, iv. F-1; Lacoarret, Moure, iv. F-2.

Leprosy—Frederick Taylor, Wooldridge, iv. F-6.

Lupus—Whipham and Delépine, iv. F-6.

Morbid Growths—

Diagnosis—Beschorner, Semon, iv. F-9.

Etiology and Pathology—Ferrari, P. McBride, W. F. Quaife, R. P. Lincoln, L. Elsberg, Desveraine, Goris, Michelson, iv. F-7; Moure, Ferrucio Putelli, Ricardo Botey, Furundarena-Labat, iv. F-8.

Treatment—Massei, iv. F-9; Gottfried Scheff, iv. F-10.

Œdema—Felix Peltesohn, Virchow, iv. F-2.

Operations—

Statistics—Billroth, Fritz Salzer, iv. F-14.

Technique—Billroth, iv. F-15.

Thyrotomy or Laryngo-fissure—Karl Becker, iv. F-18; Hopmann, iv. F-19.

Paralyses—Martius, Rosenbach and Semon, Lubinski, iv. F-16.

Stenosis—Schrötter, Georg Juffinger, Wilhelm Fleiner, iv. F-17; Thomas Annandale, H. Ranke, Arpad Gerster, Dillon Brown, O'Dwyer, Ingals, iv. G-7; O'Dwyer, Ingals, iv. G-8.

Trans-illumination—Voltolini, iv. F-33; Edison W. Frundenthal, Voltolini, iv. F-34; Heryng, Blänsdorf, J. Gottstein, Voltolini, iv. F-35.

Tuberculosis—

Etiology and Pathology—A. B. Thrasher, iv. F-2; Clarence C. Rice, A. Gouguenheim, iv. F-3; Koch, A. Cartaz, Henry Handford, Kidd, L. Grünwald, iv. F-4.

Treatment—Krause, Heryngs, Gouguenheim, iv. F-4; Heryng, Betz, E. Fränkel, Massei, Hopmann, iv. F-5.

Larynx, Trachea, and Œsophagus, Diseases—J. Solis-Cohen, iv. F-1.

Lateral Curvature, Treatment—Richard Barwell, iii. F-38; Astley Cooper, iii. F-40; Barwell, F. Beely, Fischer, iii. F-41; Beely, Fischer, Albert Hoffa, Lorenz, Holger Mygind, iii. F-42.

Lavender-oil, Antiseptic Action—Bee, v. A-87.

Lead Acetate, Therapeutic Uses—Tracy, v. A-87.

Lead Poisoning—

Electricity in—Semmola, Serafini, v. C-22; Semmola, Vircoli, v. C-23.

Legal Medicine and Toxicology—Frank Winthrop Draper, iv. J-1.

GENERAL INDEX.

Ligature en masse, in abdominal operations....iii. C- 1

Light, hygiene of....v. F- 7
  electric lighting....v. F- 8
  purification of gas....v. F- 7

Lightning, pathological lesions...iii. A- 27

Linen ligatures, preparation of...iii. Q- 11

Lip, plastic surgery of....iii. J- 19
  free border, restoration of....iii. J- 21
  harelip....iii. J- 19

Lipanin (Mehring) (see also Cod-liver Oil)....v. B- 25
  therapeutic uses....v. A- 87

Liquor amnii, composition....ii. I- 13

Lithia carbonate....v. B- 34

Liver, diseases of....i. C- 30
  angioma....i. E- 26
  atrophy, acute yellow....i. C- 34
  cirrhosis....i. C- 32
  gall-stones....i. C- 40
  hepatitis, suppurative....i. C- 35
  hydatids....i. C- 38
  icterus....i. C- 31
  melanosarcoma....i. C- 43
  physiology....i. C- 30

Liver, surgical diseases....iii. C- 43
  abscess....iii. C- 43
  hydatid cyst....iii. C- 44
    resection....iii. C- 45

Living birth, proofs....iv. J- 12

Locomotor ataxia (see Post-spinal Sclerosis)....ii. B- 31

Loco-weed—astragalus mallisimus. toxic effects....v. A- 88

THERAPEUSIS.

Larynx, Diseases, Tuberculosis (*continued*).
laryngectomy early (?), iv. F-5; thyrotomy; Billroth's op., iv. F-15.

Lateral Curvature.
Rachylisis, Barwell's appar., iii. F-38; Barwell's pulley appar., iii. F-40; Beely's appar., iii. F-41; Hoffa's detorsion-corset, gymnastics; Hoffa's roller-appar.; Hoffa's suspension-swing, for scoliosis, high up, iii. F-42.

Lead Poisoning.
Massage, v. A-89.

Lepra—Leprosy.
Inoculation (neg. results), iv. A-37.

Anæsthetic Form.
Tonic and, later, chaulmoogra-oil, sm. dos. first, later incr. to gtt. xx, t. i. d. for 6 mos.; then incr. to ʒj (3.90 grm.) for 4 mos.; then in dimin. dos. and applied freely ext. to affect. pts., iv. A-38. Hoàng-nàn, v. A-66.

Ulcerated Tubercular Form.
Cleanse ulcers and dress daily with chaulm.-oil, and seed beaten into pulp, gr. vj (0.39 grm.), t.i.d., iv. A-39. *Unna's method*: On legs and feet use ungt. ac. pyrogall. (10 %); on rest of body use ungt. chrysarob. 2 t. d.; paint jaw with zinc gelatin; cover face with strong creasote-plaster mull once daily; later, excise tubercles, give ichthyol intern., iv. A-40.

Leucocythæmia.
Oxygen inhala. (pure), max. dose 105 qts. (100 litres); oxygen 2 pts. and nitrogen 1 pt., 28 qts. (26.5 litres) daily; arsenic, Fowler's sol., 30 drops, t. i. d., ii. E-13. Oxygen inhalation, v. A-101.

Lichen Ruber.
Arsenic [Fowl. sol., gtt. j to v, t. i. d.]; alk. diuret., iron, quin., ac. phosphor., and strychn., with ext appl.; freq. hot alk. baths (salicyl. of sod. and borax), 100° to 115° F.—37.77° to 46.11° C. Thor. frictions sevl. hrs. bef. bath ev. d. with tinct. sap. cum pice; if cannot be used, try vasel. *On hands*, cover with ℞ Ungt. diach., 8 p.; bals. Peru., 1 p.—M., iv. A-20.

Lip, Plastic Surgery of.
Free Border, Restoration.
Tripier's op., iii. J-21.
Harelip.
1. If child strong and well nourished, a fav. case for op. 2. If skin and flesh alone involved, wait till weaned. 3. If cleft in bony struct., "immediate op." within 10 d. after birth. Maurice Collis's op., iii. J-19.

Liver, Diseases of.
Abscess.
Puncture and drain.; incis. and drain., iii. C-43. Incis. early; opening high. If incis. contracted by ribs drawing together, exsect one or more; explora. punct. if pus suspected, iii. C-44.
Cirrhosis.
Milk diet; calomel [gr. 1-6 to x (0.01 to 0.7 grms.)]; pot. iod. [gr. j to xv (0.07 to 1 grm.)]; enemata of oxygen; tapping, i C-33. Alteratives (iodides), tonics, and diuretics, with milk diet; caffein [gr. j to v (0.07

AUTHORS QUOTED.

Lepra—Leprosy—
Etiology and Pathology—Zambaco, iv. A-34; Zambaco, iv. A-35; Danielsen, Zambaco, Casenave, Devergie, Gilbert, Hedra, Sigmund, Heindestan, iv. A-36; Zambaco, iv. A-37.
Rapid Spread of—P. S. Abraham, iv. M-7.
Treatment—Arhing, iv. A-37; Wyndham Cottle, Mouat, Roxburgh, iv. A-38; Bennett, Mouat, Jones, iv. A-39; Mouat, Dreckmann, Unna, iv. A-40.

Leucocytes, Functions—James Dickinson, Metschnikoff, v. H-2.

Leucocythæmia—
Etiology and Pathology—Von Jaksch, Stilling, Hochsinger and Schiff, Demme, ii. E-12; McCall, Anderson, Kinnicutt, Ebstein, Westphal, Stinsing, Curschmann, Mosler, ii. E-13.
Treatment—Sticker, Annual 1888, Da Costa and Hershey, Thacher, Kahler, ii. E-13; Thacher, Da Costa and Hershey, Quincke, Stintsing, F. Forchheimer, Henry, ii. E-14.

Leucomaines in Blood—Wurg, iv. L-39.

Leucoplakia Buccalis—Garretson, iii. J-26

Lichen Ruber—Lichen Planus—R. W. Taylor, Annual, Hebra, iv. A-15; Taylor, iv. A-17; Hebra, Taylor, iv. A-19.
Microscopical Examination and Pathology—Chrzonszewsky, iv. A-20; Ranvier, Waldeyer, iv. A-22; Collins-Warren, iv. A-24; Herxheimer, Hallopeau, iv. A-25; Wilson, Török, Kaposi, Besnier, Hebra, Unna, Brocq, Rona, E. Wilson, Taylor, Peffard, Robinson, Richaud, iv. A-26; Kaposi, E. Wilson, Hebra, Besnier, C. Boeck, Hans, Hebra, Unna, iv. A-27; Hebra, Kaposi, Devergie, Unna, E. Wilson, Besnier, iv. A-28.

Ligaments, Anatomy—J. Bland Sutton, Wrisberg, Santorini, v. J-6.

Ligature en Masse, in Abdominal Operations—L. A. Stimson, iii. C-1; J. E. Mears, iii. C-2.

Light, Hygiene of—
Electric Lighting—Reuss, P. de Pietra Santa, v. F-8.
Purification of Gas—Ellice Clark, v. F-8.

Lightning, Pathological Lesions—Hennessy, iii. A-27.

Linen Ligatures, Preparation—Trendelenburg, Heyder, Meyer, iii. Q-11.

Lipanin, Therapeutic Uses—Buchheim, v. A-87; von Mering, Demetrius Galatti, v. A-88.

Liquor Amnii, Composition—Koettnitz, ii. I-21.

Lithia Carbonate—Gorsky, Loesch, v. B-34.

Liver, Diseases of—
Angioma—Martinotti, i. E-26.
Atrophy, Acute Yellow—Martinez, Rosenheim, Roloff and Munk, i. C-34; Foltanek, Friis, i. C-35.
Cirrhosis—Podwyssozki, Steinhaus, Mac Donald, Millard, M. P. Jacobi, Troisier, Hallopeau, Joffroy, Petrone, i. C-32; Millard, Semmola, Jaccoud, de Brun, i. C-33; Duhamel, Glover, Mosny, Hektoen, i. C-34.

GENERAL INDEX.

Locust-leaf, toxic effects..............v. A- 88

Lumbago (see Neuralgia)............ii. C- 67

Lungs, diseases of.....................i. A- 1
  abscess................................iii. B- 12
    treatment.........................iii. B- 25
  actinomycosis...........................i. A- 78
  collapse................................iii. B- 35
  foreign body............................i. A- 70
  gangrene ....i. A- 52
  hernia...................................iii. B- 35
  œdema....................................i. A- 66
  syphilis..................................i. A- 77
  tumors....................................i. A- 69
    bronchocele.........................i. A- 70
    calculus.............................i. A-70, 71
    carcinoma...........................i. A- 69
    myxosarcoma........................i. A- 70
    sarcoma...............................i. A- 70
    syphilitic ....i. A- 69

Lupus, treatment........................iv. A- 54
  foliaceous..............................iii. D- 31
  plastic, treatment....................iii. G- 32
  vulgaris, treatment....................iv. A- 49

Lycopodium, composition............v. A- 88

Lycopus virginicus, therapeutic uses v. A- 88

Lymphadenoma, general............iii. K- 21

Lymphatic engorgement, electricity in..................................v. C- 4

Lymph-channels, rupture............iii. I- 5

Lymphoma, malignant................iii. K- 21

THERAPEUSIS.

Liver, Diseases of. Cirrhosis (*continued*).
to 0.32 grm.)]: ascitic fluid, ℥viij (¼ litre), intern., i. C-34. Dioscorea villosa, v. A-51.

Ductus Choledochus, Obliteration.
Cholecystenterotomy, iii. C-48.

Gall-stones.
Cholecystotomy, i. C-40. Ol. olivæ, large doses, ℥iv to vj (124 to 187 grm.), add ¼ % of menthol, 10 % to 15 % cognac, vitelli ovi no. ij to each dose. Take in 6 to 8 portions, within 2 or 3 hrs.; then wash mouth with vineg. and wat. and take hot, strong coffee. Massage, i. C-41. "Pumping the liver," i. C-42. Cholecystotomy, cholecystectomy, iii. C-46; cholelithotrity, iii. C-47.

Hepatitis, Suppurative.
Poultices and opium; rest in bed; Vichy water, i. C-35. Puncture, aspira., irriga. (warm boric-acid sol. 1 to 48) night and morning, drain., sloppy poultices; counter-opening, i. C-37. Incis. and drain., i. C-38.

Hydatids.
Aspira., puncture, tapping, i. C-38; electrolysis, parasit. inject., i. C-39. Op. by two stages: Periton. adhes. by incis., and packing with carbol. gauze. Op. by caustics; op. by *canule à demeure*. If rupture into pleura, make free incis., iii. C-44. Evac. by expira.; incis., tap and stitch edges to abd. wnd.; remove all cysts and adher. pts.; enucleation and resection of liver, iii. C-45. Elastic sutures, soaked in carbolic sol. (5%), iii. C-46.

Icterus. (*Quod vide.*)

Locomotor Ataxia. (See Spinal Cord, Tabes.)

Locust-leaf, Toxic Effects.
Purgation, light diet, v. A-88.

Lung, Diseases of.

Abscess of.
Pneumonotomy and pneumonectomy, iii. B-25.

Actinomycosis.
Incision, etc., i. A-79.

Gangrene.
Intra-pulm. inject.; incis., irrig. with subl. sol. (0.5 in 1000), drainage. Oro-nasal respirator with ac. carbol., and free ventila. of room; liq. diet; quin. mixt., i. A-52. Myrtol, gr. ii¼ (0.15 grm.) in capsul., t.i.d., v. A-94.

Hernia, Supra-clavicular.
If reducible, reduce and maintain by compress and bandage, iii. B-16.

Œdema.
Pilocarpine [mur., gr. ⅛ to ¼ (0.008 to 0.016 grm.)], i. A-66; oxygen inhala., v. A-102.

Lupus.
Atomiza. of a 10 % sol. ac. carbol. for 15 min. daily, loc., with dressing of same sol., iv. A-54. Remove entire thickn. of affect. skin and graft with skin-grafts, iii. G-32.

Vulgaris.
Scrape, apply ice, iv. A-49. Hydroxylamine sol. in alc. or glyc. (1 to 500), appl. extern., iv. A-52. Hydroxylamine sol. in alc. and glyc. (1 to 1000); app. 3 to 5 t. d., v. A-67.

AUTHORS QUOTED.

Liver, Diseases of (*continued*).

Gall-stones—A. Depage, Spencer Wells, i. C-40; Thomayer, Hoehling, Saunders, Durand, Arnosan, Brennan, Delorme, Mears, Moriez. Dubois, Marciquey and Boymond, Kishkin, Verdalle, Abeles, Porter, Rosenberg, Geo. Harley, i. C-41; Annual 1888, Wylie, Harley, Comingor, Zenker, Hauser, i. C-42.

Hepatitis, Suppurative—Giegel, i. C-35; Kartulis, Younge, Waring, Parke, i. C-36; Vaughn, Harley, i. C-37; Ortiz, Rusche, i. C-38.

Hydatids—Thomas, i. C-38; Krause, anon., i. C-39; Morris, Semeleder, Rasmussen, i. C-40.

Icterus — Chauffard, Weil, Gerhardt, Kraus, Goodhar, Witkowski, i. C-32.

Melanosarcoma — Litten, Trommer, Virchow, Senator, Targett, i. C-43.

Physiology—Roger, Schiff, Hegar, Jacques, Lanterbach, Claude Bernard, Ponfick, i. C-30.

Liver, Surgical Diseases—

Abscess — Mackenzie, Dunn, Williams, Chanvel, iii. C-43.

Hydatid Cyst—Thomas, iii. C-44; Morris, iii. C-45.

Resection — Roggi, Ceccherelli, Postempski, Barbacci, iii. C-45.

Living Birth, Proofs—Zaleski, iv. J-13; Lowndes, iv. J-14; Nikitin, iv. J-15.

Loco-weed—Astragalus Mallisimus, Toxic Effects—Mary G. Day, v. A-88.

Locust-leaf, Toxic Effects—Robert Coltman, Jr., v. A-88.

Lungs, Diseases of—James T. Whittaker, E. S. McKee, H. L. Taylor, i. A-1.

Abscess—S. Seabury Jones, iii. B-12; Lassen, Runeberg, Jones, Graves, iii. B-13.

Treatment—W. Koch, von Openchowski, Zakharewitch, iii. B. 26; Jos. O'Dwyer, iii. B-27.

Actinomycosis — Israel, Lindt, Laker, i. A-78; Sokoloff, Rütimeyer, i. A-79.

Collapse—Godlee. A. H. Smith, iii. B-35.

Foreign Body—Lillies, i. A-70.

Gangrene—Malagola, Squire, i. A-52.

Hernia—A. H. Smith, iii. B-35.

Œdema—Grossman, von Basch, Cohnheim and Welch, Moyer, i. A-66.

Syphilis—Gulliver, Stuart, Shattuck, Bowditch, Dieulafoy, i. A-77; Potain, Lustgarten, Renzi, i. A-78.

Tumors—Lillies, i. A-70.

Bronchocele—Arnold, i. A-70.

Calculus—Fraenkel, i. A-70; Moscati, i. A-71.

Carcinoma—Wacques, Handford, Gray, Girode, i. A-69.

Myxosarcoma—Shattuck, i. A-70.

Sarcoma—Bock, Huber, Hampeln, i. A-70.

Syphilitic—Gray, i. A-69.

Lupus—

Treatment — F. Semeleder, Cordero, iv. A-54.

Vulgaris, Treatment—Hanssen, iv. A-49.

Lycopodium, Composition—Langer, v. A-88.

Lycopus Virginicus, Therapeutic Uses—W. S. Hector, v. A-88.

Lymphatic Engorgement—

Electricity in—Mordhorst, v. C-4.

Lymph-channels, Rupture—Neufeld, Gussenbauer, iii. I-5.

GENERAL INDEX.

Macroglossus......................ii. C- 28

Macrostoma......................iii. J- 20

Main en crochet, pathology and treatment......................iii. F- 64

Malarial fevers......................i. H- 56
  diagnosis......................i. H- 59
  etiology......................i. H- 56
  pathology......................i. H- 59
  treatment......................i. H- 60

Malignant pustule, treatment.....iii. K- 18

Malta, fever......................i. H- 77
  hepatic disease in......................v. E- 31

Mammilla, depressed, operation for iii. G- 30

Mammillaplasty......................iii. L- 8

Manzanillo, toxicology and therapeutics......................v. A- 88

Marasmus, electricity in......................v. C- 11

Marriage, consanguineous......................v. E- 24

Massage—gymnastics, therapeutic uses......................v. A 89

Mastoid process, diseases......................iv. C- 29
  mastoiditis......................iv. C- 29
    Meyer's douche......................iv. C- 34
    Meyer's finger-protector.....iv. C- 35
    Meyer's mouth-gag......................iv. C- 35
    Meyer's ring-knife......................iv. C- 34
    operation for opening antrum......................iv. C- 35
    Trautman's sharp spoon....iv. C- 34
  periostitis......................iv. C-33, 37
  phlegmon over mastoid process ' iv. C- 36
  skull, chronic emphysema.....iv. C- 35

Maternal impressions (see Pregnancy)......................ii. I- 23

Measles......................i. I- 17
  complications — infectious broncho-pneumonia......................i. I- 20
    varicella......................i. I- 21
  epidemics of......................iv. M- 5
  etiology......................i. I- 17
  incubation......................i. I- 18
  pathology......................i. I- 18
    propeptone or hemialbumose in urine......................i. I- 18
  symptomatology......................i. I- 17

Meat, hygiene of......................v. F- 19
  ptomaines in......................v. F- 19
  tuberculous......................v. F- 19

Meats, consumption of diseased....v. E- 30

Mediastinal disease......................i. A- 80

Mediastinum, abscess......................iii. B- 13
  tumors......................iii. B- 14

THERAPEUSIS.

Main en Crochet.
Early Stages: Massage, friction, inunction, electric., change of work. In *later stages*, treat. unsatisfactory, iii. F-64.

Malarial Fevers.
Quinine [gr. v to xxx (0.33 to 2 grm.)] and pilocarpine [gr. 1-64 to ⅛ (0.001 to 0.03 grm.)] to reduce spleen and increase blood-cells, i. H-59; quin. 6 h. bef. paroxysm, or 8 h. bef. chill *in quotidian; in tertians*, 12 hrs. bef. chill; *in quartans*, 15 to 18 hrs. bef. chill; in div. doses, 15 min. apart. Merc., quin., and arsenic, i H-60. Arsenic [Fowler's sol., gtt. iij to x (0.20 to 0.66 grm.), *after food*], i. H-61. Parthenicine, gr. 1-12 (0.05 grm.), v. A-103; ammon. picrate, gr. iiss (0.197 grm.) ev. 4 h., v. A-109. Quin., sulph., ac. lact., ʒii gr. j (0.064 grm.); aq. ad ♏ v (0.31 c.cm.)—M. S.: Use hypod. in pernicious cases. v. A-114. *In hæmorrhagic* cases, quin. in large doses, after calomel purge. For *nausea and vomiting*, ice, hot water, morph. hypod.; use morph. sparingly or not at all. Non-irritating diuret., lager beer; diaphoretics, i. H-61. Warm or vapor-baths, warm packs, pilocarp. hyp. [mur., gr. 1-64 to ⅛ (0.001 to 0.03 grm.)]. *In convalescence*, quin. in small dos., with iron and strychn. For feeble, rapid, or *dicrotic pulse*, use digitalis, i. H-62. Quin. sulphovinate; quin. and antipyr.; neutral hydrochlor. of quin. hypod., v. A-114. Quin. bimur., with urea; quin. dihydrobromide; quin. arseniate, gr. 1.1 (0.07 grm.) in 2 dos., sev. hrs. bef. chill, v. A-115. Resorcin, gr. v (0.32 grm.) t. i. d., v. A-117; ac. salicyl., gr. xv (1 grm.), in spts. æth. nitr., ℥j (31 grm.), v. A-121.

Manzanillo, Toxic Effects.
Alcohol, v. A-89.

Marasmus.
Electricity; genl. faradis., v. C-11.

Mastoid Process, Diseases.
Mastoiditis—
If seen early, paracent. of tymp. Infla. through Eustach. tubes, hot or cold app. over mastoid and leeches; when swell. exists, Wilde's incisions. Remove polypi and caseous masses with syr., cleanse tymp. cav. through E. tube and E. cath. with wk. sol. sod. bicarb. When post. wall of ext. can. bulges, use freq. and prolong. warm-water douches and incise swollen tis. freely, iv. C-37. Resection, iv. C-29; treat otorrh. as a prophyl. measure, iv. C-30; electro-cautery over mastoid region with antisept. appl. thro. ext. aud. can.; resection in post. part. *In cat. cases*, antisep. and free drainage; Meyer's douche; treat naso-pharyn., hyper. tonsils, adenoid vegetations; Myer's ring-knife;

AUTHORS QUOTED.

Macroglossus—Bruck, ii. C-28.
Main en Crochet—
  Pathology and Treatment—E. Rollet, Poncet, iii. F-64.
Malarial Fevers—
  Diagnosis—Neely, Ferreira, i. H-59.
  Etiology — Celli and Guarnieri, Golgi, Councilman, Kenztsky, Laveran, Marchiafava and Celli, Laveran and Richard, i. H-56; Golgi, Marchiafava and Celli, i. H-57; Nikolai A. Sakharoff, Lucas, Laveran, i. H-59.
  Pathology—Kalindero, i. H-59.
  Treatment—Jaccoud, Joseph Jones, i. H-60; Ricchi, McLaughlin, i. H-61.
Malta, Fever—Bruce, anon., Veale, i. H-77.
  Hepatic Disease in—Surgeon-Genl. James Sinclair, McLean, v. E-31.
Mammillaplasty—W. L. Axford, iii. G-30; iii. L-8.
Manzanillo, Toxicology and Therapeutics—A. Betancourt, v. A-88; Betancourt, v. A-89.
Marriage—
  Consanguineous—M. Huth, v. E-24.
Massage—Gymnastics, Therapeutic Uses—Baron Nil Posse, Frank R. Fry, Mary A. Spink, Kendal Franks, G. Tedeschi, Le Marinel, v. A-89; Wm. Calwell, Baudet, Korteweg, H. Keller, A. Polubinski, G. Berne, Adolphe Wahltuch, Glovetsky, v. A-90.
Mastoid Process, Diseases—
  Mastoiditis—Holger Mygind, Schmiegelow, iv. C-29; Finlayson and Barr, iv. C-30; Richard Williams, Politzer, iv. C-31; O. D. Pomeroy, iv. C-32; Lacoarret, Ménière, Wilde, A. Ricard, Hermann Schwartze, Charles H. May, Trautman, Meyer, iv. C-33; Trautman, Meyer, Wilde, iv. C-34; Schwartze, iv. C-35; Cozzolino, Michael, H. T. Morse, iv. C-36; Wilde, E. Van Millingen, Mitskuner, iv. C-37; Küster, C. Wolf, Schwartze, iv. C-38; Virchow, Küster, iv. C-39.
  Periostitis—A. Gouguenheim, Levi, iv. C-37.
  Phlegmon over Mastoid Process—A. D. Williams, iv. C-36.
  Skull, Chronic Emphysema—Sonnenburg, iv. C-35.
Measles—
  Complications—
    Infectious Broncho-pneumonia—Bard, i. I-20.
    Varicella—F. W. Joshua, i. I-21.
  Epidemics of—Wolford, iv. M-5.
  Etiology—Sevestre, i. I-7.
  Incubation—P. Trekaki, J. J. Eyre, i. I-18; Thomas F. Raven, i. I-20.
  Pathology—
    Propeptone, or Hemialbumose in Urine—Loeb, i. I-20.
  Symptomatology—H. Leroux, Townsend, i. I-17.
Meat, Hygiene of—
  Ptomaines in—Polin and Labit, v. F-19; P. de Pietra Santa, v. F-20.
  Tuberculous—Editor Brit. Med. Journ., v. F-19.
Meats, Consumption of Diseased—Rabbi Davis, Surgeon-Genl. James Sinclair, Maclean, Marks, F. S. Billings, v. E-31.
Mediastinal Disease — Harry Edwards, i. A-80.
Mediastinum—
  Abscess—Hare, iii. B-13.
  Tumors—Letulle, H. Mallet, iii. B-14.
Medical Demography—Albert L. Gihon, v. E-1.
  Nomenclature—H. T. Guss, v. E-37; G. F. Schrady, Donald Macalister, Oldberg, E. Ray Lankester, v. E-38.
Medical Expert Testimony — Demange, Guillot, iv. J-1; Ward, Judge Bartlett, iv. J-2; Sir Fitz James Stephen, Bartlett, iv. J-3.
Melancholia—
  Treatment—Neftel, ii. C-45.
Melanuria—Von Jaksch, Pollak, Stiller, iv. K-8.
Melilot, Toxic Effects—Carrey, Collis, v. A-91.

GENERAL INDEX.

Medical demography......v. E- 1
  nomenclature......v. E- 37

Medical expert testimony......iv. J- 1

Melancholia, treatment......ii. C- 45

Melanuria......iv. K- 8

Melilot, toxic effects......v. A- 91

Meloplasty......iii. J- 18

Membrana tympani......iv. C- 5
  artificial......iv. C- 5
  perforation......iv. C- 9
    diagnosis......iv. C- 9
  phthisis, membrane in......iv. C- 10
  rupture......iv. C- 9

Meningitis, cerebro-spinal (see Brain, diseases)......ii. A- 46
  suppurative......ii. A- 48
  tubercular......ii. A- 48

Menorrhagia and metrorrhagia......ii. F- 48

Menstruation, disorders......ii. F- 46
  amenorrhœa......ii. F- 46
    etiology and treatment......ii. F- 46
    induced......ii. F- 49
  dysmenorrhœa, treatment......ii. F- 47
  general considerations......ii. F- 46
  menopause, relation to disease.ii. F- 50
  menorrhagia and metrorrhagia ii. F- 48
  menstrual peritonitis, habitual ii. F- 50
  menstruation, fetid......ii. F- 49
    vicarious......ii. F- 49
  ovulation and......ii. I- 22
  peritonitis following ovarian apoplexy......ii. G- 46
  theories of......ii. G- 44

Mental diseases......ii. D- 1

Menthol, therapeutic uses......v. A- 91

Mercury (see also Hydrargyrum).v. A- 56
  biniodide......v. B- 35
  chronic poisoning by......v. A- 81

Mesentery, chylous cyst of......iii. C- 3
  cysts of......iii. C- 4

Methacetin, therapeutic uses......v. A- 91

Methylacetanilide—exalgine, therapeutic uses......v. A- 93

Methyl-chloride anæsthesia......iii. P- 15
  general......iii. P- 15
  local......iii. P- 15

Methyl-chloride, therapeutic uses.v. A- 92

Methyl-phenyl-ketone......v. B- 2

Microbe, the......iv. L- 38

THERAPEUSIS.

MASTOID PROCESS, DISEASES, MASTOIDITIS (*continued*).
Trautman's sharp spoons, iv. C-33; Meyer's mouth-gag and finger-protector; open mastoid cells. 1. If ac. infl. of cells, with retent. of pus after appl. of cold by ice-bags or coil, after Wilde's incis., do not wait over 1 wk.; 2. In chr. infl. of M. where repeat. att. of swell. with conseq. improv. have taken place, or abscess and fistula pointing in mast. reg., neck, aud. can., or pharyn.; 3. If retained pus or cholesteatoma of mid. ear cannot be evac. by nat. channels, as soon as serious sympt. arise; 4. Long-cont. pain in mastoid reg. when not controlled by other remed.; 5. As prophyl. against result of incurable pur. infl. of m. ear, with fetid disch., in cases where obstin. penetra. fœtor of pus is only sympt. of retention of pus, open antrum, wash out m. ear from behind, iv. C-35; open antrum, iv. C-37.

MEASLES.
If epidemic, close schools for 4 weeks, iv. M-6; merc. bichlor. int., sulph. oint. ext., v. A-58.

MELANCHOLIA.
Exercise in open air, fol. by drink. of hot water and galvaniza. of brain, ii. C-45.

MEMBRANA TYMPANI, DISEASES.
PERFORATION.
Artificial drums made of celluloid, moisten in carbol. oil, apply over perf. J. W. Cousin's artific. drum-head, made of compressed cotton-fibre, sat. in antisept. oil and ether, iv. C-6. Rim in gentle contact with walls of canal; need not touch the perfora. or drum. Before applying, cleanse meat. with bor. ac. wash; not avail. when discharge is excess.; fresh one daily, iv. C-7. Pellets of subl. cot. or gauze; if otorrh. contin., cleanse ear with subl. sol. (1 to 4000), iv. C-8; cover perf. with piece of human skin, cornea of rabbit, or egg-shell membr., iv. C-9.

RUPTURE—FROM BOXING EARS.
Four leeches ant. to tragus: hot fomenta. bor. ac. sol., alc. sol. of bor. ac., iv. C-8.

MENSTRUATION, DISORDERS.
AMENORRHŒA.
Advocate vag. exam. (imperfor. hymen, etc.), ii. F-46. *With secondary atrophy*, faradism and massage, ii. F-47. *In intract. cases*, spiral-wire intra-ut. stem, ii. F-47. *Medicinal:* General tonics — iron, arsenic, and cod-liver oil. Manganese binoxide [gr. ij (0.13 grm.) in compress. pill. t.i.d.,p.p.]; manganese lactate, gr. ij (0.13 grm.), t.i.d. after food; caulophyllin [gr. j to v (0.06 to 0.33 grm.)], and pulsatilla (fl. ext., gtt. j to v] combined, intern., ii. F-47; Néris-les-Bains, v. D-28; hypnotism, v. A-77; pot. permang., gr. ij (0.13 grm.) t. i. d. in pill, v. A-104; petineria alliozea, infus., v. A-104.

AUTHORS QUOTED.

MEMBRANA TYMPANI—
  ARTIFICIAL—Kats, iv. C-5; Toynbee-Lucæ, John Ward Cousins, iv. C-6; Laurence Turnbull, iv. C-8.
  PERFORATION—Berthold, iv. C-9.
    DIAGNOSIS—Pins, Politzer, Valsalva, iv. C-9.
  PHTHISIS, MEMBRANE IN—Morse, Green, iv. C-10.
  RUPTURE—W. R. H. Stewart, iv. C-8.
MENSTRUATION DISORDERS—Paul F. Mundé, Brooks H. Wells, ii. F-1.
  AMENORRHŒA—
    ETIOLOGY AND TREATMENT—Kakushkin, Mundé, Fuertes, Heitzmann, Lutaud, Ingiott, Collins, Duke, Segur, Davies, ii. F-47.
    INDUCED—Gehrung, Reeves Jackson, ii. F-49.
  DYSMENORRHŒA, TREATMENT—Segur, Bovet, ii. F-47; Jordan, Farlow, Lewis, Goubet, Huchard, O'Donovan, Scott, Stephenson, Sweetnam, Alloway, Orthmann, Bröse, ii. F-48.
  GENERAL CONSIDERATIONS—Currier, ii. F-46.
  MENOPAUSE, RELATION TO DISEASE—James B. Hunter, ii. F-50.
  MENORRHAGIA AND METRORRHAGIA—Henske, Taylor, ii. F-48; Rokitansky, Williams, ii. F-49.
  MENSTRUAL PERITONITIS, HABITUAL—Duclos, ii. F-50.
  MENSTRUATION, FETID—De Wees, ii. F-49.
    VICARIOUS—Holmes, DeSaussure, Ford, McVickery, Waugh, ii. F-49.
  OVULATION AND—S. Chasan, ii. I-22.
  PERITONITIS FOLLOWING OVARIAN APOPLEXY—Fordyce, ii. G-46; H. P. Loomis, Schroeder, Graily Hewitt, Olshausen, Winckel, ii. G-47.
  THEORIES OF—Aveling, Johnstone and Tait, ANNUAL 1888, ii. G-44; Johnstone, Tait, Campbell, ii. G-45; Campbell, Tait, ii. G-46.
MENTAL DISEASES—Edward N. Brush, ii. D-1.
MENTHOL, THERAPEUTIC USES—Jores, McLaury, Saalfeld, v. A-91.
MERCURY—
  BINIODIDE—Woodhead, Hare, Laplace, v. B-36.
  CHRONIC POISONING—E. Herfeld, v. A-91.
MESENTERY—
  CHYLOUS CYST OF—N. B. Carson, iii. C-3.
  CYST OF—Delagénière, Guyon, iii. C-4.
METHACETIN, THERAPEUTIC USES—Weller, Franz, Mahnert, v. A-91.
METHYLACETANILIDE—EXALGINE, THERAPEUTIC USES—Dujardin-Beaumetz and Bardet, Hepp and Hofmann, G. Bardet, anon., Binet, v. A-93; Dujardin-Beaumetz, v. A-94.
METHYL-CHLORIDE ANÆSTHESIA—
  GENERAL—Trélat, Villejean and Regnauld, Spencer Wells, Le Fort, Polaillon, Fort, Laborde, iii. P-15.
  LOCAL—Ernest Feibes, Bailly, ANNUAL 1889, Richardson, Bardet, Vincent, iii. P-15.
METHYL-CHLORIDE, THERAPEUTIC USES—Huchard, Gurel, George W. Jacoby, Bardet, W. Vignal, Regnault, v. A-92.
METHYL-PHENYL-KETONE—Kamenski, Sushchinski, v. B-2.
MICROBE, THE—Peter, Broussais, iv. L-38; Claude Bernard, iv. L-39.
MICROSCOPIC TECHNOLOGY—
  AIR-BUBBLES, REMOVAL—C. M. Vorce, v. H-12.
  BONE-SECTIONS, PREPARATION—T. Charters White, v. H-16.
  BRAIN, HARDENING AND PRESERVATION—Eklund, Gustav Retzius, v. H-14.
  COVER-GLASSES, THICKNESS OF—S. Czapski, v. H-15.
  IMBEDDING MEDIUM—T. Law Webb, v. H-14.
  KOCHS-WOTZ LAMP—Kochs-Wotz, v. H-16.
  MACERATING MEDIUM—Bernhard Solger, v. H-12.
  MICROMETERS—
    METAL STAGE—Ewell, v. H-12.
    ROGERS'S EYE-PIECE—R. H. Ward, Rogers, v. H-12.
  MICROTOME, BRAATZ'S HAND—E. Braatz, v. H-14.

GENERAL INDEX.

Microscopic technology..................v. H- 8
  air-bubbles, removal.............v. H- 12
  bone sections, preparation.....v. H- 16
  brain, hardening and preservation..................................v. H- 14
  cover-glasses, thickness of.....v. H- 15
  imbedding medium...............v. H- 14
  Kochs-Wotz lamp...................v. H- 16
  macerating medium...............v. H- 11
  micrometers...........................v. H- 12
    metal stage-micrometers.....v. H- 12
    Rogers's eye-piece micrometer v. H- 12
  microtome, Braatz's hand......v. H- 14
  mounting medium ....v. H- 11
  naphthaline monobromide.....v. H- 15
    medium for immersion lenses v. H- 15
    solvent for balsam.............v. H- 15
  staining-fluids and pigments...v. H- 8

Migraine, etiology and treatment..ii. C- 44
  complicated with cerebral symptoms..................................ii. C- 45

Miliary or sweating fever (*la suette miliare*)....................................i. H- 74

Military and naval statistics........v. E- 24
  France and colonies...............v. E- 27
  Japan......................................v. E- 27
  United States..........................v. E- 24

Milk, hygiene of...........................v. F- 15
  adulteration...............................v. F- 15
  bacteria in..................................v. F- 16
  infant mortality and milk-supply v. F- 17
  production of pure milk.........v. F- 17
  ptomaine of.............................iv. L- 40
  therapeutics of ....v. B- 36
  tuberculous..............................v. F- 18

Mineral waters in gastric diseases..i. C- 11

Monobromated camphor, therapeutic uses.......................................v. A- 94

Monoplegia, brachial (see Brain, diseases)..................................ii. A- 25

Monstrosities, formation..............v. G- 18
  abdominopagus ....v. G- 24
  acephalobrachia..................v. G-19, 23
  acordiacus acephalus.............v. G- 23
  amelus ....v. G- 26
  anencephalia—acephalia........v. G- 19
  anophthalmus ....v. G- 20
  apelvic and asexual................v. G- 21
  bicephalia................................v. G- 20
  bucephalia ....v .G- 20
  cauda hominis.........................v. G- 26
  cryptophthalmus ....v. G- 21
  cyclopia ....v. G- 20
  diprosopus triophthalmus......v. G- 21
  double monsters................ ...v. G- 22
  ectopia abdominalis...............v. G- 26
  encephalocele.........................v. G- 21
  hydrocephalus......... ....v. G- 21

THERAPEUSIS.

MENSTRUATION, DISORDERS (*continued*).

DYSMENORRHŒA.
Pulsatilla fol. tinct., ♏x (0.67 grm.), t.i.d.; cannabis [ext., gr. ¼ to ½ (0.015 to 0.03 grm.]; viburnum [fl. ext., ½ to 1 teasp.]; camphor [spts., ¼ to 1 teasp.]; belladonna [tinct., ¼ to ½ teasp.]; antipyrin [gr. iv to xxx (0.25 to 2 grm.)]; manganese [binoxalate or lactate., gr. ij (0.13 grm,), t.i.d. p.p.], ii. F-47. Fld. ext. hydrastis [½ to 2 teasp.]; suppos. of ext. bell., ext. cannabis, āā gr. ¼ (0.015 grm.), at night, and in morn. if necess.; conium [succus, ¼ to 1 teasp.]; salix nigra [ext. fld., ½ to 1 teasp.]. ℞ Iodoform, gr. ss (0.032 grm.); ext. bellad., gr. 1-6 (0.10 grm.): asafœt., gr. iss (0.097 grm.)—M. et ft. pil. no. j. S.: One pill 6 times daily for a week bef. menstrua. Rapid dilatation of cervix; galvanism, neg. pole in ut., 30 to 75 milliamp., 2 t. a week, ii. F-48. Néris-les-Bains, v. D-28; hypnotism, v. A-77.

MENORRHAGIA AND METRORRHAGIA.
Horizontal posit., quiet, hot (120° F.—49° C.) douche, and opium. If due to subinvol. abort., or to hyperplast. endometrit., use sharp curette, fol. by pure ac. carbol. to raw surf., and hot douching, ii. F-48. *Medicinal:* Fld. ext. ergot, ½ to 1 teasp. Ol. erigeron. in 5-min. capsul. ev. 3 or 4 hrs. Ac. gallic. [gr. iv. to x (0.25 to 0.64 grm.)]. Digitalis to point of toxic effect. Ac. sulph. arom. [♏v to xxx (0.33 to 2 grm.)]. Ol. terebinth. [¼ to 1 teasp.]. Tinct. cinnamom. [1 to 3 teasp.]. ℞ Ext. ergot, ʒiss (5.54 grm.); ac. salicyl., gr. viij (0.5 grm.); aq. cinnam., f℥vj (177.3 grm.); syr. aurant. cort. amar., spts. juniperi, āā ℥ss (14.79 grm.)—M. S.: 1 teasp. t. i. d. Tinct. strophanth., ♏vj (0.40 grm.), ev. 6 h., ii. F-49. Bryonia alba, v. A-25; cornutin, gr. 1-32 to 1-10 (0.002 to 0.007 grm.), hypod., or gr. 1-16 to 1-6 (0.004 to 0.010 grm.) int., v. A-52; potass. permang., gr. ij (0.13 grm.), in pil. t.i.d., v. A-104; morphine inject., v. A-97.

MESENTERY, DISEASES OF THE.
CHYLOUS CYST.
Incision and remov. of cyst-contents; laparot. and extirpation of cyst, iii. C-4.
CYST.
Abdom. sect. and removal of cyst., iii. C-5.

METHYLACETANILIDE—EXALGINE, TOXIC EFFECTS.
Ether inhal., v. A-93.

MIGRAINE.
FOR CONSTIPATION.
Bitter water (Hunyadi) bef. breakfast, ii. C-45.
FOR GENL. MUSC. WEAKNESS.
Regulated exercise (walking); after the walk, hot water; 2 long walks daily, ii. C-45.
FOR BLOOD.
Iron tonics, ii. C-45.

AUTHORS QUOTED.

MICROSCOPIC TECHNOLOGY (*continued*).
  MOUNTING MEDIUM—Von Sehlen, v. H-11.
  NAPHTHALINE MONOBROMIDE—H. Jackson, v. H-15.
  STAINING FLUIDS AND PIGMENTS—Gibbes, G. Platner, Eugen Burchard, Ira Van Giesen, Müller, Grübler, v. H-8; Minor, Achard, His, Ranvier, G. C. Freeborn, v. H-9; S. Krysinski, H. S. Upson, Ranvier, Weigert, v. H-10; H. Griesbach, E. Tschokke, Gram, v. H-11.

MIGRAINE, ETIOLOGY AND TREATMENT—Neftel, ii. C-44; Goubert, Overend, Nothnagel, ii. C-45.
  COMPLICATED WITH CEREBRAL SYMPTOMS—Berbez, Charcot, ii. C-45.

MILIARY OR SWEATING FEVER—Thoinot, i. H-74; Rayer, Brouardel, Thoinot, i. H-76.

MILITARY AND NAVAL STATISTICS—
  FRANCE AND COLONIES—Longuet, Laguran, v. E-27; Louis Henrique, v. E-28.
  JAPAN—Takaki Kanehiro, v. E-27.
  UNITED STATES—Surgeon-Genl. U. S. A., v. E-25.

MILK, HYGIENE OF—Vasiliëff, v. B-36.
  ADULTERATION—Ed. Boston Med. and Surg. Journ., v. F-15; Richardson, Cronigneau, P. de Pietra Santa, Shirley Murphy, v. F-16.
  BACTERIA IN—Hueppe, Prasmowski, Leborius, Fuchs, Neelsen, v. F-16.
  INFANT MORTALITY AND MILK-SUPPLY—Ch. Girard, P. de Pietra Santa, v. F-17.
  PRODUCTION OF PURE MILK—Shirley F. Murphy, v. F-16; S. W. North, v. F-17.
  PTOMAINE OF—Delfin. iv. L-40.
  TUBERCULOUS—Harold C. Ernst, Koch, Klein, Scottish Metropol. Med. Socy., Dujardin-Beaumetz, Nocard, v. F-18.

MONOBROMATED CAMPHOR, THERAPEUTIC USES—John Stevens, v. A-94.

MONSTROSITIES, FORMATION—Pouchet and Chabry, Knox, v. G-18.
  ABDOMINOPAGUS—G. M. Collins, v. G-24.
  ACEPHALOBRACHIA—J. B. Goodwin, Dunnavant, v. G-19; J. Balin, v. G-23.
  ACORDIACUS ACEPHALUS—C. Th. Eckardt, v. G-23.
  AMELUS—H. Gravely, S. Cholmogoroff, R. T. Cæsar, W. B. Nisbet, v. G-26.
  ANENCEPHALIA-ACEPHALIA—Svenson, Banham, Ashley Cummins, King, Mabbot, J. F. Nairne, v. G-19; Frothman, Long, Reid, v. G-20.
  ANOPHTHALMUS—Anderson, v. G-20.
  APELVIC AND ASEXUAL—Strzalko and Eliasberg, v. G-24.
  BICEPHALIA—Boldt, v. G-20.
  BUCEPHALIA—Terbino, v. G-20.
  CAUDA HOMINIS—Etienne Raboud, v. G-26.
  CRYPTOPHTHALMUS—Van Duyse, v. G-21.
  CYCLOPIA—C. Phisalix, v. G-20.
  DIPROSOPUS TRIOPHTHALMUS—King, v. G-21.
  DOUBLE MONSTERS—Bertram, Windle, v. G-22; J. Labougle, P. C. Regnier, v. G-23.
  ECTOPIA ABDOMINALIS—Charles D. Rae, J. M. Barton, v. G-26.
  ENCEPHALOCELE—Broca, Demme, v. G-21.
  HYDROCEPHALUS—Vergely, Heffner, v. G-21; Simpson, Shepherd, Leonard, Marion, v. G-22.
  ISCHIOPAGUS—O. N. Heuff, J. C. Hoag, E. F. Walker, Strzalko and Eliasberg, Robt. Jones, v. G-24; E. Bugnion, v. G-25.
  JANICEPS ASYMMETROS—Caillé, v. G-23.
  MACROCEPHALUS—Money, v. G-22.
  MENINGOCELE—Anon., v. G-21.
  MICROCEPHALUS—G. Anton, E. Piper, v. G-22.
  PARASITIC FŒTUS—Robt. Jones, v. G-24; F. Bugnion, v. G-25.
  PHOCOMELUS—Simpson, v. G-26.
  PSEUDENCEPHALUS—Charon, Nicaise, v. G-23.
  SPINA BIFIDA—Snowball, E. Bitot, v. G-20.
  STERNO-THORACOPHAGUS—B. F. Lamb, N. H. Walter, v. G-23; Alex. Scott, Tinley, Fernandes, v. G-24.
  SYNOTIA—J. F. Knott, v. G-26.
  VISCERA, TRANSPOSED—Harvey Littlejohn, W. W. Gannett, Epstein, v. G-26.

GENERAL INDEX.

Monstrosities (*continued*).
- ischiopagus......................v. G- 24
- janiceps asymmatros......................v. G- 23
- macrocephalus......................v. G- 22
- meningocele......................v. G- 21
- microcephalus......................v. G- 22
- parasitic fœtus......................v. G- 24
- phocomelus......................v. G- 26
- pseudencephalus......................v. G- 23
- spina bifida......................v. G- 20
- sterno-thoracophagus......................v. G- 23
- synotia......................v. G- 26
- viscera, transposed......................v. G- 26

Morning sickness and elongated uvula......................iv. E- 12

Morphinism......................iv. I- 7
- acute poisoning......................iv. I- 9
- in pregnancy and lactation....iv. I- 9
- regulation and diminution.....iv. I- 9
- substitution for alcoholism.....iv. I- 10
- treatment......................iv. I- 7

Morrhuol (Lafage and Chapoteau) v. A-44, v. B- 25

Mortality, effect of atmospheric purity v. E- 33
- effect of forests......................v. E- 32
- effect of seasons and rains.....v. E- 33

Morvan's disease (paréso-analgésie) ii. C- 50

Motor regions in newborn animals (see Brain, physiology)...ii. A- 14

Mountain sickness......................v. D- 1

Mouth, diseases in adults......................i. C- 1
- cancrum oris......................i. C- 2
- diseases in children......................i. E- 1
- surgical diseases of......................iii. J- 8
- xerostomia, or dry mouth.......i. C- 1

Mouth, stomach, pancreas, and liver, diseases of......................i. C- 1

Munich, decrease of tuberculosis...i. A- 48

Muscle, anatomy......................v. J- 7
- pectoral muscles......................v. J- 7
- supra-clavicular muscle..........v. J- 7

Muscle, physiology of......................v. I- 6
- action of snake-poison on........v. B- 46
- energy and mechanical work..v. I- 8
- lactic-acid production............v. I- 11
- latent period of contraction......v. I- 7
- myohæmatin......................v. I- 10
- nerve-impulse, propagation......v. I- 6
- new fibres, origin......................v. I- 7
- unstriped, reactions......................v. I- 9

Muscular dystrophies — absence of muscles......................ii. C- 28
- atrophy, progressive......................ii. C- 16
- atrophy and other diseases......ii. C- 26
- hypertrophy......................ii. C- 27
- myositis......................ii. C- 27
  - ossificans progressive..........ii. C- 27
  - polymyositis......................ii. C- 27
- pseudo-hypertrophic paralysis ii. C- 25

Mutisia viciæfolia, therapeutic uses v. A- 94

Myooses, surgical......................iii. K- 1

Mycosis fungoides (granuloma fungoides)......................iv. A- 40

THERAPEUSIS.

MIGRAINE (*continued*).

FOR PAIN.

Electriza, daily applica. of mod. galv. curr., neg. pole on nape of neck, pos. pole slowly moved over forehead, eyes, and face, with occas. revers. of curr.; if not improv. in 1 wk., use farad. curr., neg. pole on nape of neck, pos. pole on epigastr., or moved about ant. and lower pt. of neck, curr. being slowly incr. and decr. Auri bromid., gr. 1-20 (0.003 grm.), well dil. in water, during attack and repeat. in 1 hr. if necess.; also twice daily betw. attacks, as prophyl., ii. C-45. Green coffee sol., v. A-44; morph., sm. dos., fol. by 1 or 2 dos. of sod. salicyl., v. A-121.

MORNING SICKNESS. (See Pregnancy, Vomiting of.)

MORPHINISM (OPIUM POISONING).

ACUTE.

Emesis, strych. and atrop. hypod.; faradism, amyl nitrite: black coffee, ice-towel and atrop. hyp., iv. I-9.

CHRONIC.

Gradual withdrawal. Narcot. first red. one-third; bromides ʒj to iij (4 to 12 grms.), till slight bromism; then reduce more rapidly and in a few days withdraw. For *restlessness*, hot bath, 95° F. (35° C.), for 15 to 20 mins., repeat ev. 2 to 4 hrs. p. r. n. For *nausea and vomiting*, beef-peptonoids, ac. phosphor. dil. For *insomnia*, ext. can. Ind. (Squibb) ʒss (2 grm.). For *neuralgia*, electric.; cocaine, gr. ¼ (0.16 grm.), with capsicum; avoid hypnotics if poss. In *convalescence*, tonics, supportive treat., iv. I-7. *Immediate withdrawal.* Codeia as substitute, grad. reduced; meco-narceine as substitute; digitalin and atrop., āā gr. 1-100 (0.000.65 grm.), hypod., with amyl nitrite, fluid nourish., wine, and whisky; cannabis Ind. and strophanthus. Anti-opium pills: ℞ Sod. phosph. exsic., gr. 1000 (65 grm.); pulv. opii, gr. 750 (48.6 grm.); trit. ipecac., gr. 150 (9 grm.); abstract. bellad., gr. 250 (16 grm.); piperine, gr. 500 (32 grm.)—M. et. ft. pil. no. 1000 div. S.: Forbid pipe. The number of pills, commencing with 2 to 8, is grad. red., iv. I-8. Cannabis Ind. ext., gr. ss (0.032 grm.), t. i. d., v. A-27; sulphonal, v. A-130, 131.

MUSCULAR DYSTROPHIES.

ATROPHY.

AFTER LESIONS OF JOINTS. Massage and electric. to atroph. muscles; bandage joint firmly for a time, ii. C-26.

OF DELTOID (TRAUMATIC). Passive circumduction of arm, ii. C-26.

AUTHORS QUOTED.

MORNING SICKNESS—
- **AND ELONGATED UVULA**—Dabney, iv. E-12.

MORPHINISM—
- **ACUTE POISONING**—Williams, Heavrin, iv. I-9.
- **IN PREGNANCY AND LACTATION**—Fürst, iv. I-9.
- **REGULATION AND DIMINUTION**—Collins, Gilles de la Tourette, Léteand and Decoust, iv. I-9.
- **SUBSTITUTION FOR ALCOHOLISM**—Block, iv. I-10.
- **TREATMENT**—Wildman, Watson, Smith, Levinstein, iv. I-7; Christian, Ball, Ritti, Briand, le Grain, Ballet, Rice, Schmitt, Stuart, Birch, Chouppe, Laborde, Peck, Hart, iv. I-8.

MORTALITY—
- **EFFECT OF ATMOSPHERIC PURITY**—Miguel R. Stern, v. E-34.
- **EFFECT OF FORESTS**—Ferron, v. E-33.
- **EFFECT OF SEASONS AND RAINS**—E. Clément, v. E-33.

MORVAN'S DISEASE—Gombault, ii. C-50.

MOUNTAIN SICKNESS—G. von Liebig, v. D-1.

MOUTH, STOMACH, PANCREAS, AND LIVER, DISEASES—Frederick C. Shattuck, i-C-1.

MUNICH—
- **DECREASE OF TUBERCULOSIS**—Von Ziemssen, i. A-48.

MUSCLE, ANATOMY—
- **PECTORAL MUSCLES**—Windel, Wenzel Gruber, v. J-57.
- **SUPRA-CLAVICULAR MUSCLE**—R. W. Reid, v. J-7.

MUSCLE, PHYSIOLOGY OF—
- **ACTION OF SNAKE-POISON ON**—Feoktiscow, v. B-46.
- **ENERGY AND MECHANICAL WORK**—Danilewsky, v. I-8.
- **LACTIC-ACID PRODUCTION**—Werther, Böhm, v. I-11.
- **LATENT PERIOD OF CONTRACTION**—Gad, Tiegerstedt, Regéczy, ANNUAL 1889, Yeo, v. I-8
- **MYOHÆMATIN**—MacMunn, Levy, Stokes, Hoppe-Seyler, v. I-10; Levy, MacMunn, v. I-11.
- **NERVE-IMPULSE, PROPAGATION**—Kühne, Aeby and Bernstein, Regéczy, v. I-6.
- **NEW FIBRES, ORIGIN**—Zaborowski, v. I-7.
- **UNSTRIPED, REACTIONS**—Biedermann, Engelmann, Lüderitz, v, I-9.

MUSCULAR DYSTROPHIES—
- **ABSENCE OF MUSCLES**—Erb, ii. C-28; Eulenburg, Bradel, Schulthess, Kobler, Tuberovsky, ii. C-29.
- **ATROPHY, PROGRESSIVE**—ANNUAL 1889, Hoffmann, Aran-Duchenne, ii. C-16; Erb, Leyden, Landouzy-Déjerine, Hitzig, Oppenheim, Siemerling, Hoffmann, Charcot and Marie, Tooth, ANNUAL 1889, Schultze, ii. C-17; Hoffmann, ii. C-18; Virchow, Goll, Friedreich and Schultze, Hoffmann, Babes, Schwann, Gombault, ii. C-19; Oppenheim and Siemerling, Auerbach, Hitzig, ANNUAL 1889, ii. C-20; Hitzig, Heubner, Preiss, ANNUAL 1889, Müller, Leyden, Déjerine and Huet, Joffroy and Achard, Schultze, Hitzig, ii. C-21; Erb and Schultze, Kobler, ii. C-22; Rémond, Mills, Putnam, ii. C-23; Bernhardt, Aran-Duchenne, Erb, Stern, Westphal, C. Winkler, Campbell, ii. C-24; Troisier and Guinon, Joffroy and Achard, Sperling, Osle., Gray, Baumler, Riegel, Homén, Erb, Berthet, Knapp, Aran-Duchenne, D'Evelyn, ii. C-25.
- **ATROPHY AND OTHER DISEASES**—Bauy, Griffith and Dercum, Harrison, Schulz, ii. C-26; Déjerine, Preston, ii. C-27.
- **HYPERTROPHY**—Lesage, ii. C-27; Pal, Bruck, ii. C-28.
- **MYOSITIS**—Plehn, Bokay, Kronecker, ii. C-27.
- **PSEUDO-HYPERTROPHIC PARALYSIS**—Rieder, Anton, Suckling, Nicholson, Hershey, Beevor, Hanford, Ryan, ii. C-25.

MUTISIA VICIÆFOLIA, THERAPEUTIC USES—Saac, H. Rusby, v. A-94.

MYCOSES, SURGICAL—Ernest Laplace, iii. K-1.

MYCOSIS FUNGOIDES (GRANULOMA FUNGOIDES)—Dorritz and Lassar, iv. A-40; Köbner, iv. A-41.

MYRTOL, THERAPEUTIC USES—Eichhorst, Jahns, H. Eichhorst, v. A-94.

GENERAL INDEX.

Myiosis (diptera, larvæ)....................i. F- 23

Myrtol, therapeutic uses....................v. A- 94

Myxœdema....................iv. H- 10
  complications....................iv. H- 9
  etiology and symptomatology iv. H- 8
  pathology....................iv. H- 9
  treatment....................iv. H- 8

Nævus pilosus, with pigmentary sarcoma....................iv. A- 30

Naphthol, therapeutic uses....................v. A- 94

Naregamia alata, therapeutic uses.v. A- 95

Nasal cavities, anterior, diseases.iv. D- 4
  foreign bodies and rhinoliths.iv. D- 15
  fungi....................iv. D- 15
  hæmatoma....................iv. D- 18
  larvæ in (myiosis)....................iv. D- 15
  lupus....................iv. D- 12
  lympho-hæmatoma....................iv. D- 18
  obstruction....................iv. D- 17
  occlusion, congenital....................iv. D- 16
  osteoma....................iv. D- 17
  papilloma....................iv. D- 14
  polypi....................iv. D- 12
  rhinoscleroma....................iv. D- 19
  sarcoma....................iv. D- 13
  tuberculosis....................iv. D- 11

Nasal septum, diseases....................iv. D- 20
  abscess....................iv. D- 21
  deviation....................iv. D- 20
  fibroma....................iv. D- 22
  perforation....................iv. D- 21
  spurs of the....................iv. D- 21

Naso-pharynx, diseases....................iv. D- 22
  adenoid vegetation....................iv. D- 25
  naso-pharyngeal catarrh....................iv. D- 22
  new instruments and procedures iv. D- 38
    Bélin's cœloscope....................iv. D- 38
    Black's speculum....................iv. D- 40
    Blair's tongue-depressor....iv. D- 40
    Brown's ecchondrotome......iv. D- 40
    Corradi's pressure-plate.....iv. D- 42
    Cozzolino's lamp....................iv. D- 39
    Dessar's nasal douche-cup..iv. D- 42
    Dionisio's palate-elevator...iv. D- 41
    Foucher's polypus-forceps...iv. D- 13
    Garrigou-Déserène's septum-clamp....................iv. D- 21
    Gleitsmann's electrode and forceps....................iv. D- 41
    Heryng's mouth-lamp........iv. D- 32
    Hinde's palate-retractor.....iv. D- 41
    Hooper's snare and écraseur iv. D- 41
    Kinnier's scissors....................iv. D- 42
    Krakauer's curette....................iv. D- 27
    Potter's speculum and mechanical saw....................iv. D- 40
    Robinson's (Beverly) inhaler iv. D- 42
    Spence's illuminator..........iv. D- 39
    Vansant's tilting mirror....iv. D- 39
    von Klein's speculum.......iv. D- 40
    White's tongue-depressor...iv. D- 41
  pharyngeal bursa, cysts........iv. D- 24
  pharyngeal tonsil, supernumerary iv. D- 22
  post-nasal catarrh....................iv. D- 24
  post-nasal polypi....................iv. D- 29
  surgery....................iv. D- 37
    anæsthetics....................iv. D- 38
    antiseptics....................iv. D- 37
    cocaine poisoning....................iv. D- 38
    head-extended position...iv. D-38, 39
  tumors....................iv. D- 24

THERAPEUSIS.

Mycosis Fungoides.
  Hg. and iod. intern.; hg. hypod. and iodides intern., iv. A-40.

Myiosis (Diptera, Larvæ).
  Infus. tobacco; removal of larvæ, i. F-25.

Myxœdema.
  Applica. of warmth, iv. H-9.

Nasal Cavities, Anterior, Diseases.
  Foreign Bodies and Rhinoliths.
    Dodd's method, iv. D-16.
  Hæmatoma.
    Incision, iv. D-18.
  Larvæ.
    Removal, iv. D-15.
  Lupus.
    Galvano-caut.; ac. lactic., Vidal's method; linear and parallel scarif. of ulcer, iv. D-12.
  Lympho-hæmatoma.
    Aspiration, repeated, iv. D-18.
  Occlusion, Congenital.
    Gouge and mallet: electric trephine, iv. D-16; drill, saw, forceps, iv. D-17.
  Osteoma.
    Ext. incis., extraction, iv. D-17.
  Polypi.
    Snare, iv. D-13.
  Sarcoma.
    Ligation of both ext. carotids; snare and ac. carbolic., iv. D-13. Vertical and lateral osteotomy: snare and galvano-cautery, iv. D-14.
  Tuberculosis.
    Curette, iv. D-11.

Nasal Septum, Diseases.
  Deviation.
    Garrigou - Désarène's septum-clamp; crush septum in place, retain 5 mins.; antisept. irriga. retaining dressings; John B. Roberts's method; Trendelenburg's meth.; resect. of quadrang. cartil., iv. D-20.
  Fibroma.
    Removal, iv. D-22.
  Spurs of the.
    Removal: electrolysis, Mish's meth., iv. D-22.

Naso-pharynx, Diseases.
  Adenoid Vegetations.
    Removal by curette and forceps under anæsth.; tonics, iron, quinine, iv. D-26. Krakauer's curette, iv. D-27. In bed after op., no exercise; galvano-cautery, iv. D-28.
  Post-nasal Catarrh.
    Gottstein's knife. Rapid brushing with "Gellé's brush for *écouvillonnage*" of naso-pharynx: First wash parts with alk. sol.: then dip brush in alc. sol. of ac. boric., introd. in vault, and give prox. end a to-and-fro motion. Insuff. of pulv. ac. boric., iv. D-24.
  Post-nasal Polypi.
    Galvanic loop: Annandale's op., iv. D-29.
  Tumors.
    Hard fibroma: Galvano-caust. snare; electrolysis where parts of tumor are inaccessible to écraseur, caut. knife, or cutting forceps; use electrol. to retard growth till adolesc., iv. D-25.
    Soft fibroma: Cold snare, pt. of attachment scraped with sharp spoon, iv. D-24: on recurrence, scraping more extensive, iv. D-25.

AUTHORS QUOTED.

Myxœdema—
  Complications—Bourneville, A. Gimeno, iv. H-10.
  Etiology and Symptomatology—H. Hun, iv. H-9; English Myxœdema Comm., H. Hun, iv. H-9.
  Pathology—Ord, C. H. Dixon, Tissier, R. Romme, iv. H-8; Halliburton, iv. H-9.
  Treatment—English Myxœdema Comm., iv. H-9.

Nævus Pilosus with Pigmentary Sarcoma — Moller, Michelson, Ziemssen, Shulz, iv. A-31.
Naphthol, Therapeutic Uses — Helbig, v. A-94; Adrian Schücking, Désesquelle, Bouchard, John V. Shoemaker, Merck, Bouchardat, Petresco, v. A-95.
Naregamia Alata, Therapeutic Uses — Hooker, v. A-95.
Nasal Cavities, Anterior, Diseases—
  Foreign Bodies and Rhinoliths—Kiesselbach, Maurer, Cresswell Baber, Truckenbrod, Major, Lapthorn Smith, M'Weeney, F. Trester Smith, Miró, Schaprinper, Mitchell, G. Oram Ring, J. Wright, Sokoloff, Baden, Holger Mygind, Garel, Gouguenheim, C. W. Dodd, iv. D-16.
  Fungi—Schubert, Siebenmann, Michel, iv. D-15.
  Hæmatoma—Thorner, iv. D-18.
  Larvæ in (Myiosis)—Pokrasoff, Wohlfahrt, iv. D-15.
  Lupus—J. Middlemass Hunt, Wagnier, Gouguenheim, Raulin, Koch, Hajek, Peaucellier, Vidal, iv. D-12.
  Lympho-hæmatoma—Gouguenheim, Strazza, Gussenbauer, iv. D-18.
  Obstruction—E. Roughton, iv. D-17.
  Occlusion, Congenital—B. Fraenkel, Rolland, Foucher, C. H. Knight, Onodi, iv. D-16; Michael, Eulenstein, iv. D-17.
  Osteoma—Gouguenheim, Montaz, F. Kammerer, Maas, iv. D-17.
  Papilloma—Noquet, Lacoarret, iv. D-14; Hopmann, Gouguenheim, Fletcher Ingals, W. S. Haines, von Bünger, Gompers, Massei, Cardone, iv. D-15.
  Polypi—Schiffers, Casselberry, Woakes, iv. D-12; Foucher, Bosworth, Labit, iv. D-13.
  Rhinoscleroma—Stepanow, Fritsche, Massei, Zagari, Mibelli, Cornil and Alvares, Paltauf and Eiselberg, iv. D-19; Wolkowitsch, iv. D-20.
  Sarcoma—Bryant, Wyth, iv. D-13; Orthmann, Fraenkel, Ollier, Major, Heymann, iv. D-14.
  Tuberculosis—Juffinger, Hajek, Luc, iv. D-11; Cresswell Baber, iv. D-12.

Nasal Septum, Diseases—
  Abscess—Gouguenheim, iv. D-21.
  Deviation — Garrigou-Désarès, John B. Roberts, W. Peyre Porcher, Trendelenburg, Adams, Krieg, Thorner, iv. D-20.
  Fibroma—Lefferts, iv. D-22.
  Perforation—Thrasher, Sajous, iv. D-21.
  Spurs of the — Chatellier, Gouguenheim, iv. D-21; G. H. Hope, J. Garel, Mish, Annual 1889, iv., D-22.

Naso-pharynx, Diseases—
  Adenoid Vegetation—White, Delavan, iv. D-25; Krakauer, Couetoux, J. Solis Cohen, Major, Ziem, Lavrand, Wright Wilson, iv. D-27; Carl Michel, Couetoux, J. A. White, Luc, Châtellier, Major, Dundas Grant, iv. D-28; William Hill, Casselberry, iv. D-29.
  Naso-pharyngeal Catarrh—J. N. Mackenzie, Tornwaldt, iv. D-22; Raugé, Luschka, Raugé, Tornwaldt, Kafemann, Schwabach, Gouguenheim, Gellé, iv. D-23; Gellé, Tornwaldt, iv. D-24.
  New Instruments and Procedures—Foucher, Bosworth, iv. D-13; Garrigou-Désarènes, iv. D-20; Krakauer, iv. D-27; Heryng, Voltolini, Cozzolino, iv. D-32: Bélin, iv. D-38; Gaertner, Dorn, Cozzolino, F. Massei, Vansant, H. L. Spence, Brunton, Zaufal, iv. D-39; Potter, Black, von Klein, M. R. Brown, Potter, J. M. Blair, iv. D-40; White, Turck, Hooper, Hinde, Dionisio, Voltolini, Massei, Gleitsmann, iv. D-41; Dessar, G. D. Hall, Bosworth, Jarvis,

GENERAL INDEX.

- Neck, fistule of.......iv. F- 33

- Nematodes (thread-worms).......i. F- 19

- Nerves, surgery of the.......iii. A- 38
  - exsection.......iii. A- 40
  - extraction, Thiersch's method.iii. A- 39
  - grafting.......iii. A- 42
  - injuries to.......ii. C- 1
  - regeneration of and operations upon.......ii. C- 2
  - stretching.......iii. A- 38
  - suture.......iii. A-40, 44
  - trophic changes.......iii. A- 43

- Nervous system, anatomy.......v. J- 10

- Nervous system, physiology.......v. I- 11
  - action of snake-poison on nerves v. B- 46
  - cerebro-spinal fluid.......v. I- 23
  - gustatory fibres of the tongue...v. I- 17
  - nerve-impulse, velocity.......v. I- 13
  - pyramidal tract and lesions of cord-area of brain.......v. I- 14
  - spinal and cranial nerves, homology.......v. I- 19
  - spinal cord, direct excitability.v. I- 14
  - spinal ganglia, nerve-fibres and nerve-cells.......v. I- 16
  - spinal nerves, nuclei of origin..v. I- 13
  - sympathetic ganglia.......v. I- 18
  - trophic nerve-fibres.......v. I- 11

- Neuralgia.......ii. C- 37
  - and abortion.......ii. C- 38
  - and psychoses.......ii. C- 37
  - etiology.......ii. C- 37
  - treatment.......ii. C- 38
    - electricity in.......v. C- 8
    - neurectomy.......ii. C- 40
  - trigeminal.......iii. J- 37

- Neurasthenia.......ii. C- 70
  - climatotherapy.......v. D- 6

- Neuritis.......ii. C- 5
  - brachial plexus.......ii. C- 6
  - median nerve.......ii. C- 6
  - medicinal (quinine).......ii. C- 6
  - multiple, in general.......ii. C- 8
    - after typhoid and scarlet fevers.......ii. C- 14
    - alcoholic.......ii. C- 12
    - and cerebro-spinal meningitis ii. C- 14
    - and pregnancy.......ii. C- 14
    - due to carbonic-oxide poisoning ii. C- 13
    - due to metallic poisoning....ii. C- 13
  - plantaris, or erythromelalgia..ii. C- 6
  - sciatic nerve.......ii. C- 6
  - ulnar nerve.......ii. C- 5

- Neurosis, professional.......ii. C- 66
  - reflex.......ii. C- 66

- Newborn, diseases of.......ii. L- 1
  - anus, imperforate.......ii. L- 22
  - blood of.......ii. L- 3
  - bone, diseases.......ii. L- 8
    - osteogenesis imperfecta.......ii. L- 8
  - convulsions.......ii. L- 4
  - facial paralysis.......ii. L- 4
  - hernia.......ii. L- 20
    - diaphragmatic.......ii. L- 20
    - inguinal, strangulated.......ii. L- 21
    - into umbilical cord.......ii. L- 21
    - umbilical operations.......ii. L- 21
    - urachal cyst.......ii. L- 20

THERAPEUSIS.

NECK, FISTULE OF.
Excision of cyst, iv. F. 33.

NEMATODES (THREAD-WORMS).
Prophylaxis: Avoid use of anatto-paste for coloring butter and cheese, or expose it to a temp. suffic. to kill the worms before using as a coloring agent, i. F-19.

NERVE, DIVIDED.
Nerve-suture, iii. A-41.

TUMORS.
After removal of tumors, nerve-grafting to supply exsected portion, iii. A-42.

NEURALGIA.

IN GENERAL.
Néris-les-Bains, v. D-27: acetanilid, v. A-3; Ammon. chloride, v. A-12; chloramide, gr. xv to lx (1 to 4 grm.), v. A-35; chlormethyl. v. A-35; cimicifuga, v. A-38; escholtzia Cal., gr. xxxviij to cl (2.5 to 10 grm.), daily, v. A-52: hypnotism, v. A-79: massage, v. A-89. ℞ Menthol, 1 p.; alcoh., glyc., syr., āā 4 p.—M. Sig.: 1 teasp. in warm water p. r. n., v. A-91. Methyl chloride, spray or *stypage*, v. A-92. ℞ Exalgine, ʒj (4 grm.); cherry cordial, ʒx (38.87 grm.); syr. symp., ℥j (31 grm.); aq. destil., ad ℥v (155 grm.)—M. S.: 1 to 3 tablesp. in 24 hrs., v. A-93. Parthenicine, gr. 1-12 (0.05 grm.), v. A-103; phenacetin, v. A-107; phosphorus in oily sol. or zinc phosphate, v. A-107: neutr. hydrochlor. quin., hypod., v. A-115; sod. salicyl, v. A-121.

DENTAL.
Rotary mirrors, 8 treatments, ii. C-40.

FACIAL.
Methyl-chloride spray, and tampons of same to M. M. of lips, ii. C-39; exsection of affect. br. of nerves, ii. C-41, iii. A-38; acetanilid, v. A-3. *Tic-douloureux:* Fld. ext. ergot. ♏viij to xij (0.5 to 0.75 c. c.m.), blood-warm, inject. into temple, ii. C-39. *Recurrent headaches of children:* Ergot, fld. ext., ♏x (0.6 c. cm.), intern., with or without iron, contin. 2 wks after cure. Hypnot. suggest., ii. C-40.

INFRA-ORBITAL.
Resection of nerve, ii. C-40; extraction of the nerve (Thiersch's meth.), iii. A-39.

LUMBAGO.
Acetanilid, v. A-3.

SCIATICA.

IDIOPATHIC.
Counter-irritation, blisters, act. caut., or irritating plast., sinapisms, methyl-chloride spray; electric brush, ii. C-38; galvanic curr. with warm baths; massage with glass-rod over nerve; extern. appl. of sulphur. Inject near nerve 10 to 20 min. (0.6 to 1.2 c.cm.) of 1% sol. osmic acid. Theine, gr. ss (0.03 grm.), inject hypod., ii. C-39: antipyrin, gr. viij (0.5 grm.). t. i. d.; acetanilide, [gr. iss to xv (0.1 to 1 grm.)]; aconitia [gr. 1-400 to 1-200 (0.00015 to 0.0003 grm.)], ii.

AUTHORS QUOTED.

NASO-PHARYNX, DISEASES, NEW INSTRUMENTS AND PROCEDURES (*continued*).
Kinnier, Beverly Robinson, Corradi. F. Massei, iv. D-42.
PHARYNGEAL BURSA, CYSTS—Wright, Tornwaldt, iv. D-22.
PHARYNGEAL TONSIL, SUPERNUMERARY—Morgan, iv. D-22.
POST-NASAL CATARRH—Siebenmann, Mayer, Luschke, Tornwaldt, Gottstein, Gellé, Pouchel, iv. D-24.
POST-NASAL POLYPI—Wagniér, Annandale, Raugé, iv. D-29; Annandale, Wolfenden, Ollier, Gouguenheim, Huertaux, Poisson, Tellier, iv. D-30.
SURGERY—
ANÆSTHETICS—Silk, iv. D-38.
ANTISEPTICS—Rice, iv. D-37.
COCAINE POISONING — Lennox Browne, Tuthill, Randall, iv. D-38.
HEAD-EXTENDED POSITION — Stoker, iv. D-38; Dorn, iv. D-39.
TUMORS—Clutton, iv. D-24; Ingals, Lincoln, Schnitzler, McLeod, Petrone, F. Massei, iv. D-25.
NECK, FISTULE OF—Schiffers, iv. F-33.
NEMATODES (THREAD-WORMS)—J. Schirmer, i. F-19.
NERVES, SURGERY OF THE—
EXSECTION—Renton, iii. A-38; Ullmann, iii. A-39; Bennett, Stewart, Leprévost, iii. A-40.
EXTRACTION, THIERSCH'S METHOD—Thiersch, von Mangoldt, iii. A-39.
GRAFTING—Robson, Ward, iii. A-42.
INJURIES TO — Eulenburg, Port, ii. C-1; Hughlings-Jackson, Bernhardt, Rieder, Boucher, Potts, ii. C-2.
REGENERATION OF AND OPERATIONS UPON—Vanlair, ii. C-2; Robson, McFarlane, ii. C-3; Vander Veer, Pusey, Mould, ii. C-4.
STRETCHING—Renton, iii. A-38; Bennett, iii. A-40.
SUTURE—Powers, iii. A-40; McFarlane, Richardson, Etzold, iii. A-41; Richardson, anon., iii. A-44.
TROPHIC CHANGES—Pusey, Princeteau, iii. A-43.
NERVOUS SYSTEM, PHYSIOLOGY—
ACTION OF SNAKE-POISON ON—Feaktistow, v. B-46.
CEREBRO-SPINAL FLUID — Halliburton, v. I-23.
GUSTATORY FIBRES OF THE TONGUE—Ziehl, v. I-17; Gowers, Ziehl, v. I-18.
NERVE-IMPULSE, VELOCITY — Riechert, v. I-13.
PYRAMIDAL TRACT AND LESIONS OF CORD-AREA OF BRAIN—Sherrington, v. I-14.
SPINAL AND CRANIAL NERVES, HOMOLOGY—Gaskell, v. I-19, 23.
SPINAL CORD, DIRECT EXCITABILITY—Reichert, v. I-14.
SPINAL GANGLIA, NERVE-FIBRES AND NERVE-CELLS—Gad and Joseph, v. I-16; Bradford, Pregaldino, Joseph, ANNUAL 1888, v. I-17.
SPINAL NERVES, NUCLEI OF ORIGIN—Von Sass, Gudden, v. I-13.
SYMPATHETIC GANGLIA—White, v. I-18.
TROPHIC NERVE-FIBRES — Kemp, v. I-11; Luntz, Kemp, v. I-12.
NEURALGIA—
AND ABORTION—Napier, Allport, ii. C-38.
AND PSYCHOSES—Anton, ii. C-37.
ETIOLOGY—Lyman, Brower, Marshall, ii. C-37.
TREATMENT—Weiss, ii. C-38; Carpenter, Jaccoud, Hurd, Hunt, Hogden, Taylor, Ziehl, Macquart, Bouvard, Solis-Cohen, Bauduy, Stewart, ii. C-39; Sturgis, Covarrubias, O'Donovan, Jr., Taylor, Frey, Bybring, Luys, ii. C-40.
ELECTRICITY IN—Shoemaker, v. C-8.
NEURECTOMY—Nicoladoni, Andrews, ii. C-40; Magruder, ii. C-41.
NEURASTHENIA — Pelizaeus, Daly, McBride, Myrtle, Crego, ii. C-70.
CLIMATOTHERAPY — A. L. Gihon, v. D-6; Burney Yeo, Rohé, v. D-7.
NEURITIS—Löwenfeld, Weir Mitchell, Schieferdecker, Blocq, ii. C-5; Sharples, ANNUAL 1889, Ruxton, Rieder, Stewart, Lessynsky, Sinkler, Coe, Morgan, ii. C-6; Goltz, Hughes, ii. C-7.

GENERAL INDEX.

Newborn, diseases of (*continued*).
infectious diseases..................ii. L- 6
channels of infection..........ii. L- 6
lead poisoning..................ii. L- 8
malaria..............................ii. L- 7
pyæmia...............................ii. L- 8
tuberculosis ....ii. L- 6
injuries................................ii. L- 1
caput succedaneum...........ii. L- 1
intestines, diseases.................ii. L- 14
choleriform enteritis..........ii. L- 14
intra-cranial hæmorrhage......ii. L- 3
kidneys, diseases...................ii. L- 14
liver, diseases.........................ii. L- 15
icterus neonatorum...........ii. L- 15
lungs, diseases ....ii. L- 11
asphyxia...............ii. J-48, ii. L- 11
lobar pneumonia..............ii. L- 12
medico-legal considerations...ii. L- 17
epoch of conception............ii. L- 18
vitality, test ....ii. L- 17
meningocele.........................ii. L- 22
mouth, nose, and throat diseases ii. L- 10
coryza and laryngitis, prognosis ....ii. L- 10
croup, operations...............ii. L- 10
thrush...............................ii. L- 10
œsophageal obstruction.........ii. L- 22
ovarian tumors ....ii. L- 22
skin, diseases..........................ii. L- 18
dermatitis exfoliative.........ii. L- 18
erythema...........................ii. L- 19
favus.................................ii. L- 20
pemphigus ....ii. L- 20
sclerema............................ii. L- 19
stomach, diseases...................ii. L- 12
bacteria..............................ii. L- 12
dyspepsia and dilatation.....ii. L- 13
irrigation ....ii. L- 13
tetanus and trismus ....ii. L- 5
therapeutic agents..................ii. L- 16
creolin...............................ii. L- 16
umbilicus, antisepsis ....ii. L- 2
hæmorrhage from............ii. L- 2
Winckel's disease...................ii. L- 4

Nipples, mammillaplasty for retracted............iii. G-30, iii. L- 8

Nitranilines ....v. B- 37
meta-nitraniline....................v. B- 37
ortho-nitraniline. ....v. B- 37
para-nitraniline.......................v. B- 37

Nitrites, therapeutic uses............v. A- 95

Nitro-benzoic acid.......................v. B- 37
meta-nitro-benzoic acid..........v. B. 38
ortho-nitro-benzoic acid..........v. B- 37
para-nitro-benzoic acid...........v. B- 38

Nitro-phenols..............................v. B- 37
meta-nitro-phenol ....v. B- 37
ortho-nitro-phenol ....v. B- 37
para-nitro-phenol....................v. B- 37

Nitrous-oxide anæsthesia...........iii. P- 13
death. ....iii. P- 14
mixed anæsthesia..................iii. P- 13

Nocturnal incontinence, electricity in v. C- 21

Nose, anatomy and physiology....iv. D- 1
erectile tissue.........................iv. D- 1
olfactory nerve.......................iv. D- 2
turbinated bone, anomaly......iv. D- 4

THERAPEUSIS.

Neuralgia, Sciatica (*continued*).
C-40; suspension treatment, ii. B-15; acetanilid, v. A-3; chlormethyl, v. A-35; massage, v. A-89; methyl-chloride spray, v. A-92.
Rheumatic.
Active diaph. once or twice; sod. salicyl., gr. xxx to xc (2 to 6 grm.), within 2 hrs.; if rejected, give same by enema; same with antipyrin, gr. x (0.7 grm.), or phenacetin [gr. viiss to x (0.5 to 0.7 grm.)], ii. C-38.
Secondary.
Remove prim. cause; *when venous congestion*, give laxatives, or bleed from anus or perinæum, ii. C-38.
Syphilitic.
Pot. iod., gr. xxx to lxxx (2 to 5.23 grm.), daily, ii. C-38.
Supra-orbital.
Hypnot. suggest., ii. C-40.
Trigeminal.
Electr., pos. pole on painful side, neg. pole opp., galv. curr. 1½ milliamp., 1 hr. daily for 2 wks., ii. C-39; butyl chloral, gr. xv to lv (1 to 3 grm.), v. A-25; acetanilid, v. A-3; sod. salicyl., gr. xx (1.30 grm.), ev. 1 to 2 hrs., v. A-12. Extirpa. of inf. max. div. of 5th pair; Mikulicz's meth., iii. J-37; Obalinski's meth., iii. J-38; first meth. of Ullmann, iii. J-39; second meth. of Ullmann, iii. J-40; Lossen-Braun meth. for extirpa. of sup. max. div. of 5th pair, and Meckel's ganglion: Mollière's op., iii. J-41; Galignani's meth., Zuckerkandl's meth., iii. J-42; Carnochan's op., Abbe's op., neurectomy, Glass's and Boenning's meth., iii. J-43.
Relapse after Operation.
Reop. at cicatr. site, remove scar-tissue of prev. op., excis. of max. condyle and excis. of inf. dental for some distance, iii. J-45.

Neurasthenia.
Ocean voyage, v. D-6. Hydrotherapy. *Erethetic form*: Soothing ablut. or prolong. wet pack, fol. by half-bath, 65° to 70° F. (18.33° to 21.11° C.), 1 or 2 t.d. *Asthenic form*: Stimulus by cold-water shower-bath for brief period, v. D-17. Suspension treatment, ii. B-15.
Impotence.
Suspension treatment, ii. B-14.
Insomnia of.
Chloralamide, gr. xv to lx (1 to 4 grm.), v. A-32.

Neuritis, Multiple.
Acute (Landry's Paralysis.)
Galvanism of affect. muscles, ii. C-11.
after Scarlet Fever.
Massage, electric., warm baths, ac. salicylic., [gr. iv to xv (0.25 to 1 grm.)], ii. C-14.
and Pregnancy.
Premature labor; electrical and hydrotherap., ii. C-14; strychn. [gr. 1-120 to 1-12 (0.0005 to 0.005 grm.)], and massage, ii. C-15.
Due to Metallic Poisoning.
In brass-workers: Potass. iodide [gr. iv to lx (0.25 to 4 grm.)], ii. C-14.

AUTHORS QUOTED.

Neuritis (*continued*).
Multiple, in General — Annual 1889, Ross, Landry, Weir Mitchell, Raynaud, ii. C-8; Nauwerck and Barth, Landry, Ross, Annual 1889, Raynaud, Joffroy, Achard, ii. C-9; Déjerine and Sollier, Barrs, Strümpell, ii. C-10; Scheiber, Putnam, Ranvier, ii. C-11.
after Typhoid and Scarlet Fevers—Ross, Seifert, ii. C-14.
Alcoholic—Hadden, Ormerod, Siemerling, Suckling, Duménil, ii. C-12.
and Cerebro-spinal Meningitis — Upson, Annual 1889, ii. C-14.
and Pregnancy—Desnos, Pinard, Joffroy, Whitfield, ii. C-14.
Due to Carbonic-oxide Poisoning—Jacoby, ii. C-13.
Due to Metallic Poisoning—McClure, ii. C-13; Suckling, ii. C-14.
Neurosis—
Professional—Remak, ii. C-66; Woodbury, Féré, Gallard, Brown-Séquard, Zenner, Lehr, ii. C-67; Laquer, ii. C-68.
Reflex—Erb, ii. C-66.
Newborn, Diseases of—Andrew F. Currier, ii. L-1.
Anus, Imperforate—Vincent, ii. L-22.
Blood of—Scherensiss, ii. L-3.
Bone, Diseases—
Osteogenesis Imperfecta—Stilling, ii. L-8.
Convulsions—Currier, ii. L-4.
Facial Paralysis—Gowers, Stephan, ii. L-4; Henoch, Jolly, ii. L-5.
Hernia—Patterson, Jacobus, ii. L-20; Tait, Willard, Harries, Robinson, Barton, Lindfors, Felsenreich, Godlee, Treves, Olshausen, Fleischmann, Caldwell, Reuter, Stolypinsky, Robertson, Piperno, Dunlap, Dohrn, ii. L-21; Doran, ii. L-22.
Infectious Diseases—Cholmogoroff, Karlinski, Eitner, Sanchez-Toledo, ii. L-6; Koch, Malvoz and Brouvier, Huguenin, Wolff, Verneuil, Felkin, ii. L-7; Baginsky, Legrand and Winter, ii. L-8.
Injuries—Parvin, ii. L-1.
Intestines, Diseases—Schoppe, Priessnitz, ii. L-14.
Intra-cranial Hæmorrhage—Hirst, ii, L-3.
Kidneys, Diseases—Monssous, ii. L-14.
Liver, Diseases—Kehrer, Baginsky, Hofmeier, Currier, Scott, ii. L-15; Stryker, Hinkson, Newmann, ii. L-16.
Lungs, Diseases—Dohrn, O'Dwyer, Reynolds, ii. L-11; Townsend, ii. L-12; Alexander Duke, Egon Braun, Doe, Nikitin, Rabinovitch, Schultze, ii. J-48; Nikitin, F. H. Champneys, ii. J-49.
Medico-legal Considerations.—
Epoch of Conception—Olshausen, Hohl, Ahlfeld, Matthews, Duncan, ii. L-18.
Vitality Test—Rayger, Brestan, Bernheim, ii. L-17.
Meningocele—Batchelor, ii. L-22.
Mouth, Nose and Throat, Diseases—Robin, Grawitz, Riess, Parrot, Simon, Caillé, ii. L-10.
Œsophageal Obstruction—Vincent, ii. L-22.
Ovarian Tumors—Doran, ii. L-22.
Skin Diseases—
Dermatitis, Exfoliative—Ritter, Elliott, ii. L-18; Kaspary, ii. L-19.
Erythema—Vineta-Bellaserra, Di Lorenzo, ii. L-19.
Favus—Desmet, ii. L 20.
Pemphigus—Olshausen and Mekus, Danek, Pulvermacher, Riegel, Zechmeister, Gibier, Strelitz, Kilham, ii. L-20.
Stomach, Diseases—Van Puteren, Escherich, Heneppe, Faucher, Ebstein, Moncorvo, ii. L-13.
Tetanus and Trismus—Labonne, Lop, Beumer, Evans, Shaw, Tordeus, ii. L-5; Soltmann, Tordens, Peiper, ii. L-6.
Therapeutic Agents—Garrigues, Schwinz, ii. L-16.
Umbilicus, Antisepsis—Penrose, Fagonski, Runge, Epstein, Dakin, ii. L-2
Winckel's Disease—Strelitz, Bigelow, Winckel, Barr and Grand-Homme, Pollack and Laroyenne, Parrot, ii. L-4.
Nipples, Mammillaplasty for Retracted—W. L. Axford, iii. G-30, iii. L-8.

GENERAL INDEX.

Nose, deformities -absence..........iii. J- 16
pug-nose..........iii. J- 14
saddle-nose..........iii. G- 30

Nose and accessory cavities, diseases..........iv. D- 1
reflex neuroses..........iv. D- 30
eyes..........iv. D- 30
nervous symptoms..........iv. D- 31
œsophagus..........iv. D- 31
sneezing..........iv. D- 31
teeth..........iv. D- 31
vasomotor..........iv. D- 30
statistics..........iv. D- 37

Nuclein..........v. I- 5

Nutmeg, toxic effects..........v. A- 96

Nux vomica, therapeutics and toxicology..........v. A- 96

Nymphæ, diseases..........ii. H- 1
atresia..........ii. H- 14
nymphomania..........ii. H- 1

Obesity, treatment..........v. A-109

Obstetrics..........ii. J- 1
operative..........ii. J- 6

Œsophagus, diseases..........iv. F- 23
anomalies..........iv. F- 24
carcinoma..........iv. F- 32
dilatation..........iv. F- 24
diverticulum..........iv. F- 24
foreign bodies..........iv. F- 26
œsophagotomy for..........iv. F- 27
œsophagoscopy..........iv. F- 23
Leiter's pan-electroscope....iv. F- 23
œsophagotomy..........iv. F- 33
Berlinghieri's ectropœsophage iv. F- 33
rupture..........iv. F- 26
stricture..........iv. F- 28
cicatricial, gastrostomy......iii. C- 11
coarctation, with fistulæ.....iv. F- 31
from carcinoma, gastrostomy iii. C- 13
linear electrolysis..........iv. F- 31
Symonds's tubes..........iv. F- 29

Oils essential, antiseptic properties v. A- 97

Oliguria and anuria..........iv. K- 2

Olive-oil, therapeutic uses..........v. A- 97

Omentum, cyst of..........iii. C- 5
sarcoma of..........iii. L- 7

THERAPEUSIS.

NEUROSES.
PROFESSIONAL.
Rest, massage, genl. tonics, ii. C-67. *Writers'*: Use glass pen, ii. C-67. Hypnotism, v. A-77; massage, v. A-90; Néris-les-Bains, v. D-27.

NIPPLE, RETRACTED.
Axford's plastic op., iii. G-30; iii. L-8.

NOSE, DEFORMITIES.
ABSENCE.
T. Sabine's op., Rotter's op., Martin's op., iii. J-16.
PUG-NOSE.
König's meth., plastic op., iii. J-15.
SADDLE-NOSE.
Von Czerwinski's plastic op., iii. G-30.

NUX VOMICA — STRYCHNIA.
TOXIC EFFECTS.
Chloral; intra-venous inject. of soda sol. (8%), v. A-96; paraldehyde, v. A-97.

NYMPHÆ, DISEASES.
ATRESIA.
Split membrane in med. line, ii. H-14.
NYMPHOMANIA.
From larvæ of screw-worm in vagina: Removal, irrigation, ii. H-1. Salix nigra, v. A-122.

OBESITY.
Ext. phytolaccæ baccæ, gr. iij to v (0.19 to 0.32 grm.), in pill, 2 or 3 before meals, v. A-109.

ŒSOPHAGUS, DISEASES.

CARCINOMA.
Gastrostomy, iii. C-13, iv. F-32.

DIVERTICULUM.
Bougie, iv. F-25.

FOREIGN BODIES.
Panelectroscope, extraction, œsophagotomy, iv. F-27. Berlinghieri's ectropœsophage, iv. F-33.

AUTHORS QUOTED.

NITRANILINES—Gibbs and Hare. v. B-37.
NITRITES, THERAPEUTIC USES—J. P. Parkinson, C. Binz, Collischonn William C. Kloman, v. A-95.
NITRO-BENZOIC ACID—Gibbs and Hare, v. B-38.
NITRO-PHENOLS—Gibbs and Hare, v. B-37.
NITROUS-OXIDE ANÆSTHESIA—
DEATH—Anon., iii. P-14.
MIXED ANÆSTHESIA—R. Gersung, Hillischer, iii. P-13; Fred. Hewitt, iii. P-14.
NOCTURNAL INCONTINENCE—
ELECTRICITY IN—R. Jamin, v. C-21.
NOSE, ANATOMY AND PHYSIOLOGY—
ERECTILE TISSUE—J. Herzfeld, Kölliker, Zuckerkandl, Voltolini, iv. D-1; Zuckerkandl, Aschenbrandt, Herzfeld, Voltolini, iv. D-2.
OLFACTORY NERVE—C. L. Dana, iv. D-2; Haycraft, Dana, iv. D-3.
TURBINATED BONE, ANOMALY—Massei, Trifiletti, iv. D-4.
NOSE AND ACCESSORY CAVITIES, DISEASES—Charles E. Sajous, iv. D-1.
REFLEX NEUROSES—
EYES—Trousseau, Ziem, iv. D-30.
NERVOUS SYMPTOMS — Lichwitz, Daly, Foster, Joal, Schneider, Crossfield, A. Peyer, iv. D-31.
ŒSOPHAGUS—Joal, iv. D-31.
SNEEZING—Wertheim, Surmont, iv. D-31.
TEETH—Potter, iv. D-31.
VASOMOTOR—Von Stein, iv. D-30.
STATISTICS—Chappell, iv. D-37.
NUTMEG, TOXIC EFFECTS—Amos Sawyer, v. A-96.
NUX VOMICA, THERAPEUTICS AND TOXICOLOGY—John G. Musser, B. Naunyn, Pinnoy, Herbert Jones, C. M. Fegen, C. Sanquirico, v. A-96.
NYMPHÆ, DISEASES—
ATRESIA—J. R. Logan, ii. H-14.
NYMPHOMANIA—Wernicke, ii. H-1.

OBSTETRICS—William Wright Jaggard, ii. J-1.

ŒSOPHAGUS, DISEASES—
ANOMALIES—M. J. Brosset, iv. F-24.
CARCINOMA—P. Lancereaux, Delassus.Félix Leguen, J. F. Morse, Le Bec, Klemperer, iv. F-32.
DILATATION—Ewald, iv. F-24.
DIVERTICULUM — E. Hoffmann, iv. F-24; Berkhan, iv. F-25.
FOREIGN BODIES—E. Masiere Courtenay, Ivanoff, Pye, C. F. Warren, iv. F-26; Lagrange, von Hacker, Schrötter, Overlach, iv. F-27.
ŒSOPHAGOTOMY FOR — George Fisher, Richet, Fischer, Frew, iv. F-27.
ŒSOPHAGOSCOPY—Hacker, Billroth, Leiter, iv. F-23.
ŒSOPHAGOTOMY—Ed. v. Whal, Vacca Berlinghieri, iv. F-33.
RUPTURE—Henry F. Formad, iv. F-26.
STRICTURE—Piéchaud, iv. F-28.
CICATRICIAL—W. B. Rogers, iii. C-11; Greig Smith, Bayard Holmes, iii. C-12; F. J. Lutz, M. F. Porter, ANNUAL, 1889, J. C. Clark, iii. C-13; D. N. Knox, J. J. Weaver, Arthur Jones, iii. C-14.
COARCTATION, WITH FISTULÆ—Jul. Hadæus, iv. F-31; Pollosson, F. Eklund, iv. F-32.
FROM CARCINOMA—F. J. Lutz, iii. C-13; B. E. Hadra, iii. C-14.
LINEAR ELECTROLYSIS—J. A. Fort, Gouguenheim, iv F-31.
SYMONDS'S TUBES—Charters J. Symonds, iv. F-29; Krishaber, iv. F-30; Senator, iv. F-31.
OILS, ESSENTIAL, ANTISEPTIC PROPERTIES—Cadéac and A. Meunier, Chamberland, v. A-97.
OLIGURIA AND ANURIA—Delameter, iv. K-12; Bernardy, Rossolymo, Fear, Bum, Sir William Roberts, Wilson, Spallitta, iv. K-3.
OLIVE-OIL, THERAPEUTIC USES—C. R. Earley, v. A-97.
OMENTUM—
CYST OF—John Waldy, Lembert, iii. C-5.
SARCOMA—P. Goullioud and J. Mollard, iii. L-7; Laroyenne, iii. L-8.
OPHTHALMOLOGY—
Charles A. Oliver, iv. B-1 to 112.
MEDICAL —Geo. M. Gould, iv. B-112 to 146.

GENERAL INDEX.

Onanism, treatment......v. A- 78

Oncometer......v. I- 27

Onycrasia......iv. K- 9

Ophthalmology......iv. B-1 to 112
  medical......iv. B-112 to 146

Opium, poisoning by......iv. I- 12
  therapeutics and toxicology......v. A- 97

Optic chiasm, medullated fibres in human (see Brain)......ii- A- 15

Oral and facial surgery......iii. J- 1

Ormosine (narcotic)......v. A-100

Orthomethylacetanilide......v. B- 36

Orthopædic surgery......iii. F- 1

Osseous system, anatomy......v. J- 1
  eighth true rib and right-handedness......v. J- 4
  first cuneiform bone......v. J- 3
  foot, architecture of the......v. J- 2
  long bones and height......v. J- 1

Ossified man......iii. G- 29

Osteotomy......iii. G- 12

Osteogenesis imperfecta......ii. L- 8

Otology......iv. C- 1

Otorrhœa (see Ear, otitis media).iv. C- 15

Ouabaïo—ouabaïne, local anæsthesia iii. P- 20
  therapeutic uses......v. A-100

Ovarian tumors......ii. G- 1
  carcinomata......ii. G- 7
    diagnosis......ii. G- 7
    etiology......ii. G- 7
    treatment......ii. G- 8
  cysts......ii. G- 1
    cancerous dermoids......ii. G- 5
    follicular dropsy......ii. G- 2
    intra-ligamentous, treatment ii. G- 3
    multilocular......ii. G- 2
    Rokitansky's tumor......ii. G- 2
    striated muscular tumors...ii. G- 5
    unilocular......ii. G- 1
    Wolffian......ii. G- 2
  in the young......ii. G- 8
  sarcomata......ii. G- 6

Ovaries and tubes, diseases of......ii. G- 1

Ovariotomy......ii. G- 9
  complications following abdominal section......ii. G- 10
  hysterectomy, effect on ovaries.ii. G- 13
  incomplete operation......ii. G- 9
  removal of uterus and appendages, and sexual appetite.ii. G- 12
  statistics......ii. G- 11

THERAPEUSIS.

Œsophagus. Diseases (*continued*).

Stricture.

Cicatricial: Gastrostomy, iii. C-12, iii. C-13. Rubber tube in the silver tube; silver tube corked up at night, rub. tube removed, iii. C-14. Dilatation by Symonds's tubes, iv. F-29; laminaria tent; linear electrol. over stricture, curr. 10 to 30 milliamp., with dilata., iv. F-31. Incis. with Maisonneuve urethrotome, fol. by dilata., iv. F-32. *Carcinomatous:* Gastrostomy, iii. C-13.

Oliguria and Anuria, with Hysteria.

Hypnotism; broad-leafed prickly pear or cactus; massage of limbs, iv. K-3.

Omentum, Diseases.

Cyst.

Abdom. sect., extirpa. of cyst; drainage, antisept. dressings, iii. C-5.

Onanism.

Hypnotism, v. A-78; salix nigra, v. A-122; sulphonal, v. A-131.

Opium, Toxic Effects. (See also Morphinism.)

Lavage of stom.; atrop., gr. 1-15 (0.004 grm.), hypod., farad. curr.; forced respira. by mechan. app. where artif. resp. has failed, v. A-98. *Morphia narcosis:* Atrop. to gr. 1-6 (0.01 grm.), v. A-99; picrotoxine, v. A-100. *Codeine narcosis:* Emetic, whisky, v. A-100.

Ovarian Tumors.

Carcinomata.

Remove every ovar. tumor as early as possible. *Cancerous ascites:* Laparotomy is pref. to puncture, ii. G-8; acetanilid, *for pain*, v. A-3.

Cysts.

Ovariotomy, ii. G-9.
Intra-ligamentous.
Enucleation, ii. G-4. Removal of cyst and capsule together by ligating the ligaments below the cyst by unions of the "repeated continuous suture." Combination of both methods. *If adherent* and non-removable, remove as much of cyst-wall as poss.; cleanse and scrape

AUTHORS QUOTED.

Opium, Therapeutics and Toxicology—J. F. A. Adams, anon., Séverin, Lachapelle, anon., Bötterick. Huchard, Case, v. A-97; Bantock, Bedford, Fenwick, Heywood, Smith, R. T. Smith, Frank Nicholson, Geo. E. Frell, V. L., Guido Rheiner, Bardet and Adrian, Linde, v. A-98; William Bourke, W. F. Conwell, Wm. Eddomes and Arthur Jackson. G. Ryding Marsh, Huchard, Konrad Alt., Hitzig, Chaber, v. A-99; J. Du Bourg, Arpád, Bókai, David Welsh, v. A-100.

Oral and Facial Surgery—Rudolph Matas, iii. J-1.

Ormosine (Narcotic)—Kobert, v. A-100.

Orthomethylacetanilide—Dujardin-Beaumetz and Bardet, v. B-36.

Orthopædic Surgery—Lewis A. Sayre, Reginald H. Sayre, iii. F-1.

Osseous System, Anatomy—
  Eighth True Rib and Right-handedness—D. J. Cunningham, v. J-4.
  First Cuneiform Bone—Hartmann and Mordret, Gray, Le Dentu, v. J-3.
  Foot, Architecture of the—W. Rasumowski, v. J-2.
  Long Bones and Height—Thomas Dwight, Etienne Rollet, v. J-1; Beddoe, v. J-2.

Osteotomy—Harte, Laplace, Annual 1888, Defontaine Koenig, iii. G-12.

Otology—Charles S. Turnbull, Arthur Ames Bliss, iv. C-1.

Ouabaïo — Ouabaïne—
  Local Anæsthesia—Gley, Arnaud, iii. R-20.
  Therapeutic Uses—Henri Cathelineau, Revcil, v. A-100.

Ovarian Tumors—
  Carcinomata—Mueller, ii. G-7.
    Diagnosis—Freund, Schröder, ii. G-8.
    Etiology—Mueller, ii. G-7.
    Treatment—Freund, ii. G-8.
  Cysts — Rutherford, Olshausen, Coblentz, Doran, Cruveilhier, Rokitansky Bland Sutton, ii. G-1.
    Cancerous Dermoids—Pomorski, ii. G-5; Alban Doran, ii. G-6.
    Follicular Dropsy—Olshausen, Peaslee, Spencer Wells, Rutherfurd, ii. G-2.
    Intra-ligamentous, Treatment—Skene, ii. G-3; Bland Sutton, Minor, ii. G-4.
    Multilocular—Olshausen, Tait, ii. G-2.
    Rokitansky's Tumor—Ritchie, Tait, ii. G-2; Olshausen, Peaslee, Tait, Waldeyer and Balfour, Rutherfurd, ii. G-3.
    Striated Muscular Tumors — Alban Doran, Terrillon, Vignard, ii. G-5.
    Unilocular—Rutherfurd, ii. G-1.
    Wolffian — Olshausen, Fischel, Doran, ii. G-2.
  in the Young—Hamaker, Roemer, Neville, Busch, ii. G-8; Alcott, Schwartz, Barker, Knowsley Thornton, Spencer Wells, Capples, Chenoweth, Wegscheider, Marjolin, Pauly, Lebert, Olshausen, Lucas, ii. G-9.
  Sarcomata — Alexander, Spencer Wells, Doran, Howell, Schroeder, Olshausen, Leopold, ii. G-6; Baker Brown, Beigel, ii. G-7.

Ovaries and Tubes, Diseases of—William Goodell, W. Constantine Goodell, ii. G-1.

Ovariotomy—
  Complications following Abdominal Section—Baldy, Holmes, Imlach, ii. G-10; Johnson, Verneuil, Homans, Richelot, Peaslee, Kimbel, ii. G-11.
  Hysterectomy, Effect on Ovaries—Grammatikati, ii. G-13.
  Incomplete Operation—Tait, Olshausen, Schroeder, Homans, Terrier, Buchanan, ii. G-9; Coe, Polk, ii. G-10.
  Removal of Uterus and Appendages and Sexual Appetite—Tait, Bantock, Harvey, Heywood Smith, Fancourt Barnes, Routh, Büdge, ii. G-12.
  Statistics—Pittsburgh Medical Review, ii. G-11.

Oxalic Acid, Toxic Effects—Charles Bage, Weiss, v. A-100.

GENERAL INDEX.

Oxalic acid, toxic effects (see also Salt of sorrell)....v. A-100

Oxygen—osone, therapeutic uses...v. A-101

Oxynaphtoic acid, in skin diseases.iv. A- 50

Oxyuris....i. F- 20

Ozone, guaiacum resin and....v. B- 38
therapeutic uses (see Oxygen).v. A-101

Palate, plastic surgery of....iii. J-19, 31

Pancreas, diseases of.... i. C- 24
acute pancreatitis....i. C- 24
chronic disorders....i. C- 27
cysts....i. C- 28

Pancreatic juice, action of diet and drugs on....v. B- 53

Paraldehyde....v. B- 40
therapeutic uses....v. A-103

Paralysis, cerebral (see Brain, diseases)....ii. A- 41
electricity in....v. C-3, 9
facial....ii. C- 7
gustatory....ii. C- 7
Landry's (acute multiple neuritis)....ii. C- 8
muscular (traumatic), from pressure....ii. C- 4
of pneumonia....i. A- 53

Parametritis and pelvic abscess....ii. F- 44

Paramyclonus multiplex....ii. C- 66

Parasites, animal, and their effects.i. F- 1
protozoan (rhizopods, sporozoa, infusoria)....i. F- 1

THERAPEUSIS.

Ovarian Tumors, Cysts (*continued*).
remain. and unite it to abdom. wall, ii. G-5.

Oxyuris.
Rect. injec. ol. morrh., plain or in emuls. with eggs. Sulphur-water int. or per clysma. Inject. of turpentine, dil. with some bland subst., i. F-21.

Pancreas, Diseases of.
Acute Pancreatitis.
Palliative. When pus forms in omental cavity, opera. for removal, i. C-27.
Cyst.
Laparotomy, walls of cyst stitched to abd. wound, i. C-28.

Paralysis.
Agitans.
Suspension treatment, ii. C-15.
Facial.
Later Stages.
Mild galvanic curr., ii. C-7.
Muscular, Traumatic, from Pressure.
Cut down and free nerve from callus, inflam. tissue, etc., ii. C-4.

Parasitis.
Protozoan, Amœbæ.
Inject. tannin, ac. boracic, or quin. sulph.; also bism., op., naphthalin, etc., int.; best results from inject. sol. quin. sulph. (1 to 5000), i. F-2.

Parotitis.
If pain is severe, use narcotic appl. or ice loc. Iodof. collodion (2 to 8 or 10), 2 t. d., over surface, i. J-12.
Complications.
Orchitis.
Pat. in bed with testicles slightly suspended, i. J-12.

Pediculi Pubis.
Iodof. soap; iodof. gauze firmly bound on pubis.iv.A-57

Pelvic Connective Tissue, Diseases.
Abscess and Parametritis.
Early evac. of pus by incision per vagin., or by laparotomy and drainage; aspiration. Galvanism (50 to 100 milliamp., neg. or pos., in vagina) in chr. parametritis, ii. F-45.
Hæmatocele.
Abdom. section; vaginal incision, ii. F-45.

Penis, Diseases.
Dislocation.
Split up sheath, bring down with hooked finger, iii. E-1.
Epithelioma.
Entire removal of ext. genitals by thermocaut.; urethra cut off in perinæum, iii. E-2.

Pericarditis.
Paracentesis in 4th or 5th intercost. space, just to left of sternum: aspira.; incis. and drainage, iii. B-7, iii. B-20, iii. B-34.

Perinæum, Laceration.
Denudation op., Tait's flap-splitting op., ii. H-14; Duke's op., ii. H-17. *After-treatment:* Withhold narcotics; open bowels on 2d or 3d day; Let patient *pass* her urine. *Dressing:* Iodof. dusting, bland grease over wound, or hot-water inject. without dressings, ii. H-18.

AUTHORS QUOTED.

Oxygen, Ozone, Therapeutic Uses—Guilini, Kammerer, Leuder, Donat en Labbé, Victor v. Gyurkovechky, W. Gilman Thompson, Pasquale de Tullio, Scervino, Cresswell, v. A-101; Samuel S. Wallian, Dupont, Purgotti and Sacchi, S. S. Wallian, Demarquay, Henry Roscoe and Lunt, Schutzenberger, v. A-102; Maximilian Herz, Jochheim, v. A-103.
Oxynaphtoic Acid—
in Skin Diseases—Schwimmer, iv. A-50.
Oxyuris—Gubb, A. Grimaud, Lallemand, i. F-20; Grimaud, George J. Monroe, i. F-21.
Ozone, Guaiacum Resin and—Kowalewsky, von Babo, Ruhmkorff, Bunsen, v. B-38.

Pancreas, Diseases of—

Acute Pancreatitis—Classen, Klebs, Friedreich, Fitz, i. C-24.

Chronic Disorders—Van Ackeren, T. J. Walker, Friedr. Müller, Musculus and von Mering, i. C-27: Le Nobel, Walker, i. C-28.

Cysts—Lindner, i. C-28; Thompson, Annual 1889, Lindner, Lardy, Wölfler, Nichols, Gläser, i. C-29.

Pancreatic Juice—

Action of Diet and Drugs on—Parloff, D. Küvshinsky, v. B-53; Bernstein, P. Villjanin, S. P. Botkin, Küvshinsky, v. B-54.

Paraldehyde—Gordon, v. B-40; Russell and West, Gordon, v. B-41; Gordon, v. B-43.

Therapeutic Uses—C. M. Hay, James G. Kiernan, v. A-103.

Paralysis—

Electricity in—Dubois, v. C-3; Erb, Sahli, Petrina, v. C-4; Shoemaker, v. C-9; C. S. Bull, v. C-10.

Facial—Neumann, Annual 1889, Danion, Koch, Variot, Herz, ii. C-7.

Gustatory—Hershey, ii. C-7.

Muscular, Traumatic, from Pressure—Pusey, Mould, ii. C-4.

Paramyclonus Multiplex—Manquat, Vanlair, ii. C-66.

Parasites, Animal, and Their Effects—Joseph Leidy, Charles S. Dolley, i. F-1.

Protozoan—Massiutin, Lösch, Grassi, Perroncito, Sontino, Koch, Kartulis, Hlava, i. F-1; Massiutin, Kartulis, Lösch, Darier, i. F-2; Lindemann, Leuckadt, Darier, Pagets, White, A. Pilliet, Darier, Malassez, Albaran, E. Balbiani, i. F-3.

Parasitic (Vegetable) Skin Diseases—Eichhoff, iv. A-52; Weissinger, Reynolds, Cantrell, iv. A-57.

Parotitis—

Complications—Demme, Musgrove, Slagle, Percy Smith, Parrott, F. W. Brown, Day, i. J-12.

Etiology—Miloneas, i. J-11; Balinsky.

Incubation—Dauchés, Jacobi, Nicholson, i. J-11.

Treatment—Jacobi, F. W. Brown, i. J-12.

Parthenicine, Therapeutic Uses—C. Ulrici, v. A-103.

Pediculi Pubis—Constantin Paul, iv. A-57.

Pelletierine, Toxic Effects—Tanret, E. B. Landis, v. A-103.

GENERAL INDEX.

Parasitic (vegetable) skin diseases iv. A-52, 57

Parotitis..........i. J- 11
  complications..........i. J- 12
  etiology..........i. J- 11
  incubation..........i. J- 11
  treatment..........i. J- 12

Parthenicine, therapeutic uses.....v. A-103

Peat-baths (Marienbad)..........v. D- 23

Pediculi pubis..........iv. A- 57

Pelletierine, toxic effects..........v. A-103

Pelvic connective tissue, diseases..ii. F- 44
  abscess and parametritis........ii. F- 44
    etiology and treatment........ii. F- 44
  pelvic hæmatocele..........ii. F- 45
    treatment..........ii. F- 45

Pelvic pain from malformed genitals ii. G- 47

Pemphigus..........iv. A- 33
  in newborn..........ii. L- 20

Penetrating wounds of abdomen.iii. M- 10

Penis, diseases..........iii. E- 1
  dislocation..........iii. E- 1
  epithelioma..........iii. E- 2

Peptone—pepsin, therapeutic uses.v. A-103

Peptonuria..........iv. K- 20

Pericarditis..........i. B-9, iii. B- 6
  etiology..........i. B- 9
  symptomatology and diagnosis.i. B- 10
  treatment by aspiration........iii. B- 7
    puncture *versus* **incision**....iii. B- 20

THERAPEUSIS.

PERITONITIS.

If cause is organic, use knife, fol. by irriga. and drain.; if of doubtful char., try purg. and be prepar. for surg. interfer.: use salines in prefer. to opium. In perfor. perit. and periton. by extension with threat. perfor., avoid salines. *Salines at outset* may abort by their rapid and complete depletion. Opium and extern. deplet., *if seen later*. If pus in abd., laparot., irriga., and drain., i. D-12. *Musser's treat.*: 1. If acute, 3 to 15 leeches; in more advanced cases, blist., fol. by hot foment. 2. Liq. diet, stim. if necess., ice, liq. calcis, champagne. 3. Calom. in sm. dos. ev. hr. till cathar., contin. to ptyalism, with op.: enema of warm oil and water if cal. does not act. 4. Aconite for child, veratr. vir. for ad., until pulse is red. 5. Morph. and atrop. hypod. to relieve pain. 6. Stimulat. by subcut. inject. of whisky, digitalis, atrop., and amyl nitrite in collapse. *Opera. necessary*: 1. Fulminating forms, incr. of sympt., excess. tymp., vom., feeble pulse, restlessness; 2. Immin. collapse in spite of treat.: vom., rap. pulse, incr. feeblen., dimin. temp: 3. Pus in abd. cav. or in tumor in or adjac. to abdom: 4. Grave cases: Peritonit. from perfor. append., infl. of bil. pass. or the tubes, ulcer of stom. or intest.; 5. Intest. obstruct., intussuscept., etc., i. D-13.

PURULENT.

Laparot.; radical cleansing with sponge or knife; peritoneal lavage, hot subl. sol. (1 to 4000), 10 to 15 qts. (10 to 15 litres); drain.; sut. of abdom. wall; antisept. dress., iii. C-10.

TUBERCULAR, ACUTE.

Constitutional treat., i. D-13; laparot., iii. C-11.

PERITYPHLITIS, APPENDICITIS, TYPHLITIS.

Avoid purg. and enem. in beginning. Absol. quiet of pat. by anodyn. If tumor, open by lat. incis. as soon as constitut. or local signs of pus. If incr. of loc. peritonitis, perf. lat. or med. laparot. If genl. peritonitis suspect., use fine needle in hypogastr. for diag. (blad. being empty). If in doubt, perf. med. or lat. laparot.: Avoid handling intest.: use tempor. irriga. with large glass tubes, or perman. or repeat. irriga. To meet obstruct. sympt. after laparot., use saline purg. and lavage of stom. Enterotomy (?). In all cases of peritonitis, break up adhes. *In pelvic abscess*, enucleate, lavage of abdom. cav. and drainage, iii. C-38; enema bef. op., saline after op. (if pyrex.); simple drain. preferred to genl. irriga. Explor. aspira. with needle, to detect genl. periton.: insert needle obliquely near iliac bord. and into lumbar. reg., pointing it forw. and inw. to loca. of cæcum. If any signs of loc. periton., operate early, iii. C-39.

AUTHORS QUOTED.

PELVIC CONNECTIVE TISSUE, DISEASES—
  ABSCESS AND PARAMETRITIS—
    ETIOLOGY AND TREATMENT—Bumm, Shimonek, ii. F-44; Allen, Hardon, Parish, Skene, McLaren, Clinton Cushing, E. W. Cushing, Parish, Wiedow, Bäumgartner, Price, Ashby, Nilsen, Lawrence, Horrocks, Bröse, Orthmann, ii. F-45.
  PELVIC HÆMATOCELE, TREATMENT—Rosenwasser, ii. F-45.

PELVIC PAIN FROM MALFORMED GENITALS—Duvelius, A. Martin, ii. G-47.

PEMPHIGUS—Style, iv. A-33; Dolega, iv. A-34.
  IN NEWBORN—Olshausen, Mekus, Pulvermacher, Danek, Reigel, Zechmeister, Gibier, Kelham, ii. L-20.

PENETRATING WOUNDS OF ABDOMEN—H. D. Reckerbach, Arthur T. Cabot, F. B. Harrington, Osherovsky, W. H. Baldwin, J. C. Sexton, Thomson, J. Venkataswamy, G. E. Lyndon, H. Méjasson, Perrier, iii. M-10: Frank Hartley, iii. M-11.

PENIS, DISEASES—
  DISLOCATION—A. P. Hill, iii. E-1.
  EPITHELIOMA—Polaillon and Dubuc, iii. E-2.

PEPTONE — PEPSIN, THERAPEUTIC USES—C. Küger, v. A-103; Théverin, Henry B. Douglass, anon., v. A-104.

PEPTONURIA—Raymond, Gerhardt, Obermuller, Senator, Petri, Maixner, Jaksch, Hofmeister, Quinquaud, Wasserman, Sée, Bouchard, iv. K-20; Raymond, Hofmeister, Georges, Tanret, Isaakidès, iv. K-21.

PERICARDITIS—
  ETIOLOGY—Hayem and Tissier, i. B-9; Cuopf, Parker and S. West, i. B-10.
  SYMPTOMATOLOGY AND DIAGNOSIS—Von Stoffella, i. B-10; E. Pins, i. B-11.
  TREATMENT BY ASPIRATION—Bouse, Twist, Macdonald, iii. B-7.
    PUNCTURE VERSUS INCISION—Ferrier, iii. B-20.

PERINÆUM, DISEASES—
  LACERATIONS, REPAIR OF—Tait, Marcy, King, Wyman, Da Costa, Owen, Munn, Carpenter, Parvin, Martin, Holford Walker, Macphatter, Podsewitsch, Mundé, Fancourt Barnes, Sänger, Rüter, Uspensky, Warder, ii. H-14; Marcy, King, Wyman, Goodell, Carpenter, J. Price, Hoffman, Fancourt Barnes, ii. H-15; Parvin, Mundé, Sänger, Macphatter, Tait, ii. H-16; Alexander, Duke, Munn, Marcy, Smith and Carhartt, ii. H-17: Emmet, ii. H-18.
  PERINEOTOMY — Frommel, Zuckerkandl, Battlehner, Hadra, ii. A-18.
  SUPPORT OF—Chassagny, ii. H-18.

PERIPHERAL NERVOUS DISEASES, MUSCULAR DYSTROPHIES, AND GENERAL NEUROSES—Henry Hun, ii. C-1.

PERITONITIS—
  DIAGNOSIS—Tyson, Packard, i. D-11.
  ETIOLOGY—Rinne, Pawlowski, McCaskey, Fenwick, i. D-10; Mackenzie, i. D-11.
  SYMPTOMATOLOGY—Mackenzie, i. D-11.
  TREATMENT—Baldy, i. D-11; Tait, Baldy, Engström, Musser, i. D-12.
    SURGICAL TREATMENT — Demons, iii. C-9; Denucé, Bouilly, Léon Labbé, Campenon, Routier, Denuce, Brun, iii. C-10.

GENERAL INDEX.

Perinæum, diseases ....ii. H- 14
  lacerations, repair of............ii. H- 14
  perineotomy ....ii. H- 18
  support of............................ii. H- 18

Peripheral nervous diseases, muscular dystrophies, and general neuroses ....ii. C- 1

Peritoneum, diseases ....ii. F- 44

Peritonitis ....i. D- 10
  diagnosis..................................i. D- 11
  etiology.....................................i. D- 10
  symptomatology........................i. D- 11
  treatment................i. D-11, iii. C- 9

Peritonitis, tubercular, acute........i. D- 13
  clinical history....................i. D- 13
  chronic ....ii. F- 44
    surgical treatment............iii. C- 11
      laparotomy......................ii. F- 44

Peritiphlitis — appendicitis — typhlitis................................iii. C- 36

Permanganate of potassium, therapeutic uses ....v. A-104

Pertussis...i. J- 9
  complications.........................i. J- 11
  treatment ....i. J- 9

Petineria alliosea, therapeutic uses v. A-104

Petroleum, toxic effects..............v. A-105

Petroleum soap, in skin diseases..iv. A- 57

THERAPEUSIS.

PERTUSSIS.

Resorcin fumiga., gr. xv (0.97 grm.), used ev. 2 hrs. day and night; cocaine sol. app. loc., but dangerous; pulv. resin. benz. insuffla., i. J-9. ℞ Bromoform, gr. x (0.66 grm.); alcoh., ʒj (2 grm.); syr., ℥ss (15.50 grm.; aq., ℥iij (93.00 grm.)—M. Sig.: 1 teasp. ev. hr.; bellad. q. s. to prod. erythema after ev. dose. Inf. 6 to 8 mos., gr. 1-6 (0.01 grm.) of root or alc. ext. t. i. d.; 3 to 4 yrs., gr. ss (0.032 grm.) t. i. d., as powd. or ext., dissolv. and sweetened; or tinct. bellad., 2 yrs., gtt. vj: if flush percept. in 20 to 30 min., dose is right, if not incr.: in few days larger dose req. Atrop. sulph. at 2 yrs., gr. 1-100 (0.00065 grm.). t. i. d.; ac. carbol. as antisept. and anæsth., i. J-10. ℞ Ac. Carbol., gr. xv (1 grm.); spts. vini, ♏xv (1 grm.); tr. iodi, gtt. x; tr. bellad., ♏xxx (2 grm.): aq. menth. pip., ʒij (8 grm.); syr. opiat., ʒijss (10 grm.)—M. S.: One teasp. to child. over 2 yrs. ev. 2 hrs. Ac. carbol. vapor from boil. sol., 1% to 1½%; phenacetine [gr. j to iv (0.07 to 0.25 grm.)]: cocaine sol. 4%, app. loc., i. J-11. Allyl tribromide, gtt. v, v. A-11; Antipyrin, v. A-14: chloroform-water, v. A-36; amyl nitrite inhal., v. A-95; resorcin, v. A-116; strophanthus, v. A-126.

PETROLEUM. TOXIC EFFECT (BENZINE VAPOR).

Artif. resp. and frictions, v. A-105.

PHARYNX, DISEASES.

ANGINA LUDOVICI.

GENERAL.

Quin., alcohol, tonics, and highly-nour. food, iv. E-2.

LOCAL.

Rinse mouth and throat freq., to rem. infec. prod. of disease with sol. of pot. permang. [1-400 to 1-100], or sol. ac. boric. (4%). *When submax. swelling is not great*, use interstit. inject. of carbol. sol. or tinct. iodi. *When swelling is great*, make deep incis., iv. E-2.

ERYSIPELAS.

If respira. is impeded, perf. tracheot., iv. E-1.

PHARYNGITIS, ACUTE,

Salol, gr. xlv to lx (3 to 4 grm.). 3 or 4 t. d., shaken up with mucilage. Also use gargles and sprays of ac. bor. sol. [4%]. Milk diet, iv. E-1. Ext. hydrastis fld., loc., v. A-65; massage, v. A-90.

PHOSPHORUS. TOXIC EFFECTS.

Prophylaxis: Use large retorts in manuf. of phosph., placed in vast sheds, with free circula. of air. Amorph. phosph. in match-making, v. A-108.

PIEDRA.

Shave scalp, iv. A-45.

PITYRIASIS VERSICOLOR.

Alc. sol. anthrarobin (10% to 20%), v. A-13.

PLACENTA PRÆVIA.

Braxton Hick's method: 1. On diag. of P. P., terminate pregnancy at once. 2. When op. once started, remain by pat. 3. If os fully expanded and P. marginal, rupture membr. and wait to see if head is soon pushed by pains

AUTHORS QUOTED.

PERITONITIS, TUBERCULAR, ACUTE—
  CLINICAL HISTORY—Fenwick, Hight, Coats, Tison, i. D-13.
  CHRONIC—
    SURGICAL TREATMENT—F. Spaeth, Prochownick, Kümmel, iii. C-11.
      LAPAROTOMY—Caccherelli, Werner, Deneke, Schmitt, Alban Doran, ii. F-44.

PERITYPHLITIS, APPENDICITIS, TYPHLITIS—Weir, iii. C-37; Jacobus, Wylie, Abbe, iii. C-38; Bull, iii. C-39.

PERMANGANATE OF POTASSIUM, THERAPEUTIC USES—W. Stevenson, J. H. McCaskey, Lwow, v. A-104.

PERTUSSIS—
  COMPLICATIONS—Fritsche, Mircoli, i. J-11.
  TREATMENT—Leblond and Baudier, Baginsky, Stepp, i. J-9; anon., Jacobi, Illingworth, i. J-10; Rothe, Lee, Heimann, Carr, i. J-11.

PETINERIA ALLIOSEA, THERAPEUTIC USES—Anon., v. A-105.

PETROLEUM, TOXIC EFFECTS—J. B. Amberson, Joseph Leidy, Jr., v. A-105.

PETROLEUM SOAP IN SKIN DISEASES—Vergely, Constantin Paul, Venot, iv. A-57.

PHAGOCYTOSIS—Metschnikoff, Osler, iv. L-35; Weigert, Toussaint, Buchner, Grawitz, Metschnikoff, Wyssokowitsch, iv. L-36; Emmerich, Osler, Boulay, Bouchard, Gamaleia, iv. L-37; Charrin, iv. L-38.

PHARYNX, DISEASES—
  ANGINA LUDOVICI, TREATMENT—Schwartz, iv. E-2.
  ERYSIPELAS—Lennander, iv. E-1.
  ŒDEMA, ACUTE—Moure, iv. E-1.
  PHARYNGITIS, ACUTE, TREATMENT—Gouguenheim, iv. E-1.
  RETROPHARYNGEAL ABSCESS—Blackader, Cecil, iv. E-2.

PHARYNX, TONSILS AND SOFT PALATE, DISEASES—D. Bryson Delavan, iv. E-1.

PHENACETIN, THERAPEUTIC USES—Franz Mahnert, Bayer, v. A-105; Berdazzi, P. Tripold, R. von Jaksch, L. Hirschfelder, Masius, S. W. Stevenson, R. S. Young, v. A-106; James G. Kiernan, Thomas W. Ayers, M. F. Price, Pesce, W. C. Hollopeter, v. A-107.

PHOSPHATURIA—Peyer, iv. K-48; Mossé and Banal, Sendtner, iv. K-49.

PHOSPHORUS, THERAPEUTICS AND TOXICOLOGY—Joseph Eichberg, anon., Finley Ellingwood, Caseneuve, Coignet, v. A-107; Brouardel, Hammer, Samuel Gross, G. V. Poore, Percy V. Dodd, v. A-108.

GENERAL INDEX.

Phagocytosis............iv. L- 35
    Buchner's theory............iv. L- 36
    Grawitz's theory............iv. L- 36
    Metschnikoff's theory............iv. L- 36
    Toussaint's theory............iv. L- 36

Pharynx, diseases............iv. E- 1
    angina Ludovici, treatment...iv. E- 2
    erysipelas............iv. E- 1
    œdema, acute............iv. E- 1
    pharyngitis, acute, treatment.iv. E- 1
    retropharyngeal abscess............iv. E- 2

Pharynx, tonsils, and soft palate, diseases............iv. E- 1

Phenacetin, therapeutic uses............v. A-106

Phlebin............v. I- 4

Phloroglucin-vanillin test for acids.i. C- 7

Phosphaturia............iv. K- 48

Phosphorus, therapeutics and toxicology............v. A-107

Phthisis, membrana tympani in...iv. C- 10

Physiology............v. I- 1

Physostigma—eseridine, therapeutic action............v. A-108

Phytolaccæ bacca—phytolaccæ radix, therapeutic uses............v. A-109

Pian (Frambœsia)............iv. A- 47

Pichi, therapeutic uses............v. A-109

Picric acid—picrate of ammonium, therapeutic uses............v. A-109

Picrotoxin, therapeutic uses............v. A-109

Piedra............iv. A- 44

Pilocarpine, therapeutic uses............v. A-109

THERAPEUSIS.

PLACENTA PRÆVIA (*continued*).
into os. 4. If any slowness or hesitation, employ forceps or version. 5. If os small and placenta more or less over it, carefully detach P. from around the os; if no further hæm. may wait 1 to 2 hrs.; but should os not expand, if dilating bags are at hand, os may be dilated. If forceps admitted easily, use it; if not, version by combin. ext. and int. method., and plug os by leg or breech of fœtus; leave to nature, with gentle assistance, as in foot and breech case. 6 If os be smaller, and neither forceps nor dilators handy, use combin. version as before. If during any of above manip. sharp hæm. appears, turn by combined method, to plug by breech. 8. Where fœtus occurs before end of 7th. mo., combined version, no force following, is best; also best if routine treat. is adopted, ii. J-28. Expectant plan, ii. J-29.

PLACENTA PRÆVIA LATERALIS.
Expectant treat., tampon, forceps. Chloral and colpeurysis until term. Expect. treat. fol. by version on account of hæm., ii. J-29. Tampon. for 5 hrs., membr. ruptured, delivery, ii. J-31.

PLACENTA, RETAINED.
When other means fail, and placenta becomes septic, remove uterus by vaginal hysterectom.; also supra-vaginal extirpation, ii. F-44. Major's procedure, ii. J-31. Inject cold or hot water or vinegar into umbil. vein. *If anteflexions*, avoid ergot; expectant plan, with deliv. of after-birth, ii. J-32.

PLEURISY AND EMPYEMA.
  NON-PURULENT.
    Broad bandage, 2½ to 4 in. (6 to 10 cent.) tightly wrapped around thorax, i. A-65.
  PURULENT.
    Peroxide hydrogen (50% sol.) inject., i. A-65.

PNEUMONIA.
Baths in difficult resp. and lack of secretion; antipyrin in deficient circula.; ice-bag guarded by brandy and warmth if collapse fol. (ice in rubber bag over affect. lung for 12 to 24 hrs. after crisis), i. A-57. Calomel and opium; no expector.; hydrogen peroxide, ½ teasp., well dilut., ev. hr.; chloroform inhala. (dil. with alcohol). Digitalis, large doses; potass. iod., gr. xv (1 grm.), q. 3 h., day and night, i. A-58. Acetanilid, especially in croupous form, v. A-4; ammon. chloride, v. A-12; caffeine, v. A-25; chloroform-water, v. A-36; gelsemium with veratrum vir., v. A-54; jaborandi (in congestive stage), v. A-85; lead acetate, gr. vj to lx (0.4 to 4 grm.), in 24 hrs.; if act. on bowels, check with laud.; may use for 12 to 15 d.; stimul. if necess., v. A-87. Pilocarpine, hot-water bags, and blankets; if much cyanosis, glonoin at same time, v. A-110. Sulphonal, v. A-130; veratrum vir., as a vascular cardiac tonic, v. A-137. *In broncho-*

AUTHORS QUOTED.

PHTHISIS, MEMBRANA TYMPANI IN—Morse, Green, iv. C-10.

PHYSIOLOGY—W. H. Howell, v. I-1.

PHYSOSTIGMA—ESERIDINE, THERAPEUTIC ACTION—Eber, Bihringer, v. A-109.

PHYTOLACCÆ BACCA—PHYTOLACCÆ RADIX, THERAPEUTIC USES—M. M. Griffith, C. J. Rademaker, v. A-109.

PICHI, THERAPEUTIC USES—Egasse, v. A-109.

PICRIC ACID—PICRATE OF AMMONIUM, THERAPEUTIC USES—C. H. Hughes, Calvelli, v. A-109.

PICROTOXIN, THERAPEUTIC USES—S. W. Stevenson, Bókai, v. A-109.

PIEDRA—Renoy, iv. A-44.

PILOCARPINE, THERAPEUTIC USES—James R. Goodhardt, Wladislaw Witkowski, v. A. 109; W. C. Peaslee, v. A-110.

PINUS PUMILIO, THERAPEUTIC USES—E. Dubois, v. A-110.

PITCH-OIL, TOXIC EFFECTS—Beaven Rake, v. A-110.

PLACENTA PRÆVIA—
  DIAGNOSIS—Herbert Spencer, ii. J-27; Braxton Hicks, Robert Barnes, Matthew Duncan, ii. J-28.
  ETIOLOGY—Kaltenbach, Hofmeier, Edward W. Sawyer, ii. J-25.
  NATURAL HISTORY—Chaleix, Pinard, Pajos, ii. J-26; Coulhon, ii. J-27.
  PROGNOSIS—A. Kramer, ii. J-28.
  RECURRENCE—Ernest H. Fitzpatrick, W. Murray Leslie, Braxton Hicks, ii. J-26.
  TREATMENT—Braxton Hicks, ii. J-28; Lomer, Hicks, ii. J-29; Bigg, N. H. Neblett, R. Randolph Ball, A. D. Sinclair, D. T. Winston, S. E. Neidhardt, M. A. Dumond, R. G. Wiener, A. J. Abbe, Backus, Henry O. Read, Strahl, ii. J-30.

PLACENTA PRÆVIA LATERALIS—Lermuseau, Charles E. Williams, iii. J-29; Loviot, ii. J-31.

PLACENTA, RETAINED, HYSTERECTOMY—Roosenburg, ii. F-44.

PLASTIC SURGERY—
  CHEEK—Bichat, Francois Villar, Lamarque, C. H. Welch, Wölfler, Gussenbauer, Israel, Kraske, iii. J-18; Ritschl, Thiersch, iii. G-30.
  EAR—Keen, iii. G-30.
  LIPS—Thomas H. Manly, Maurice Collis, A. and F. Suares de Mendoza, iii. J-19; Bernard Pitts, Dupuytren, Fergusson, Bland Sutton, Billroth, E. Pils, J. Dreier, iii. J-20; Bergmann, Roser, Madelung, Tripier, Imbert, W. Roger Williams, iii. J-21; L. Eschweiler, Trendelenburg, K. Gumperts, iii. J-22; A. F. Plicque, Koch, Gross, iii. J-23.
  NIPPLE—W. L. Axford, iii. G-30.
  NOSE—J. Rotter, V. Czerwinski, Claude Martin, Daniel Mollière, Charles A. Hayman, B. Merrill Ricketts, König, Israel, iii. J-14; König, Rotter, V. Czerwinski, iii. J-15; Ricketts, T. Sabine, Hardy, Howe, Martin, Ollier, Poncet, Letievant, Gayet, Polosson, V. Czerwinski, iii. J-16; Polosson, Martin, Henry Morris, Charles A. Hayman, iii. J-17; Czerwinski, iii. G-30.

GENERAL INDEX.

Pinus pumilio, therapeutic use.....v. A-110

Pitch-oil, toxic effects..................v. A-110

Pityriasis versicolor, treatment...v. A-8, 21

Placenta prævia...............................ii. J- 25
  diagnosis.......................................ii. J- 27
  etiology ....ii. J- 25
  natural history ....ii. J- 26
  prognosis.......................................ii. J- 28
  recurrence......................................ii. J- 26
  treatment.......................................ii. J- 28

Placenta prævia lateralis..............ii. J- 29

Placenta, retained—hysterectomy.ii. F- 44

Plastic surgery...............................iii. G- 30
  cheek (meloplasty)..iii. G-30, iii. J- 18
  ear..iii. G- 30
  lips (harelip)..................................iii. J- 19
  nipple (mammillaplasty).....iii. G- 30
  nose (rhinoplasty)..iii. G-30, iii. J- 14
  palate (staphylorrhaphy—uranoplasty)...............................iii. J- 31
  skin-grafting, human and zoöplastic.......................................iii. G- 31
  spina bifida...................................iii. G- 31
  tendon-suturing.....iii. G-31, iii. A- 43

Plegaphony, new diagnostic sign...i. A- 19

Pleura, hernia of.............................iii. B- 14

Pleurisy ....iii. B- 6
  anatomico-physiological aspect iii. B- 7

Pleurisy and empyema.....................i. A- 62
  diagnosis.......................................i. A- 64
  pathology.......................................i. A- 62
  treatment.......................................i. A- 65
    by aspiration...............................iii. B- 10

THERAPEUSIS.

Pneumonia (*continued*).
pneumon. of child., emetics, ipecac, or apomorphia, gr. 1-6 to ⅓ (0.01 to 0.02 grm.), daily, i. A-58.

Poisoned Wounds.
Arrow-wounds.
Stimulants, farad., iii. M-12.
Human Bites.
Antiphlogist.; *If phlegmon.*, deep incis. or amput. if necess., iii. M-12.
Snake-bites.
Strych. up to gr. 1-12 (0.05 grm.) until conscious. returns; sol. pot. permang., 1 %, hypod., iii. M-12. Hoang-nàn, v. A-56; olive-oil, v. A-97.
Viper, Scorpion, Tarantula.
Sol. pot. permang., 1 %, hypod., iii. M-12.

Polyuria.
Ergot [fl. ext., ½ to 1 teasp. t.i.d.]. Antipyrin, gr. xxx (2 grm.), daily, incr. gr. xv (1 grm.) daily to ʒiss (6 grm.), or ur. dimin.; after 8 d., omit to see if res. are permanent. Child of 12 yrs., antipyrin, gr. viiss (0.5 grm.), with powd. valerian-root, ½ teasp., t.i.d.; also galvan. to cerv. symp. and spine, iv. K-2.

Pott's Disease.
Suspension treatment, ii. B-15: Mitchell's suspension treat.; Mitchell's spine-car or chair; extension, iii. F-29; Sayre's plaster-of-Paris jacket, with jury-mast, etc., iii. F-30; Barwell's splint (poroplastic felt), iii. F-31; leather collar in cervical caries, iii. F-32. Plaster jacket around trunk, neck, and head for cervical caries. In *dorsal paraplegia from ang. curv.*, resec. of spin. proc. and lam. of 4th, 5th, and 6th dors. vertebræ, iii. F-33; resect. of spin. proc. and lam. of last cerv. and 1st and 2d dors. vertebræ iii. F-34; *avoid* resection of vertebr. if acute sympt. are present (?), iii. F-35; trephining; Sayre's appar., iii. F-36. In *fract. of spin. proc.* of 11th and 12th dors. vertebr., with paraplegia, use galvan. daily, with massage and strych., for 6 to 8 wks., if no improv.; cut down and exsect bone, iii. F-37. In *traumatic irregularity of sp. col. with paraplegia* from this bone, cutting op. is indicated; defer op. no longer than neces. to recover from orig. shock; early operation, iii. F-38.

Pregnancy, Diseases of.
Complications.
Albuminuria.
If chr. nephr. exists, induce prem. labor at once (?). Diuretics, hydragogue cath., tinct. ferri mur.; if no improv., prem. labor, ii. I-10.
Cardiac Lesions.
Avoid heavy loads, violent efforts; rest during pregn., in horiz. pos.; slight abstract. of blood by bleeding, cups, or lax., ii. I-15. Celibacy, if adv. mitral trouble, arrest pregn.; tonics, digital., forceps deliv.; avoid anæsth. during labor, ii. I-16.
Deformed Pelvis.
Previous Cæsar. section, Porro op., ii. I-24.

AUTHORS QUOTED.

Plastic Surgery (*continued*).
Palate—Charles B. Porter, G. F. Grant, H. A. Baker, iii. J-31; Baker, J. C. Warren, Masson Warren, Billroth, Julius Wolff, iii. J-32; Wolff, iii. J-33: Wolff, Rotter, Langenbeck, iii. J-34; Thiersch, iii. J-35; Rotter, Blasius, Thiersch, Ernest Hart, Trélat, Ehrmann, iii. J-36; Trélat, iii. J-36.

Skin-grafting, Human and Zooplastic—Thomas, Franke, Eiselsberg, Hart, Husson, Heydenreich, Kraske, iii. G-32; Wolff, von Esmarch, Fowler, Senger, Thiersch, Silbernik, iii, G-32; Rivington, Croft, Rogers, Altamirano, Dubosquet-Laborderie, iii. G-33; Polaillon, Danet, Dubosquet-Laborderie, iii. G-34.

Spina Bifida—Zenenko, iii. G-30.

Tendon Suturing—Schwartz, Perier, Mayo Robson, iii. G-31.

Plegaphony—Sehrwald, i. A-19.

Pleura—
Hernia of—George R. Fowler, iii. B-14; L. H. Petit, iii. B-15; Chorel, iii. B-26.

Pleurisy—
Anatomico-physiological Aspect—Alexander James, iii. B-7; Garland, iii. B-9.

Pleurisy and Empyema—
Diagnosis—Strauch, Ebstein, Scheurlen, i. A-64; Provost, Secretan, i. A-65.
Pathology—Bowditch, i. A-62; Landouzy, Thue, Netter, Weichselbaum, and Serafini, i. A-63; O'Dwyer, i. A-64.
Treatment—Richard Otto, Weil, Baümber, Albersheim, anon., i. A-65.
by Aspiration—J. B. Bramwell, iii. B-10; F. P. Porcher, Jaccoud, iii. B-11.

Plumbago Kandeus, Therapeutic Uses—F. Semeleder, v. A-110.

Pneumaturia—Müller, iv. K-57.

Pneumonia—
Complications—Hirsch, Pignatari, von Szontagh, Prudden and Northrup, i. A-56.
Etiology—Mosler, Fränkel, Friedländer, i. A-54; Bard, Vernon, Porter, Maragliano, Ballard, Neal, Crouigneau, Wells, Baker, Sternberg, i. A-55; Seibert, Fränkel, Sternberg, Pasteur, Friedländer, Rudolph Emmerich, Delafield, Slosse, i. A-56.
Pathology—Roger and Gaume, i. A-52; Schütz, Netter, Dauchez, Deville, Chéron, Traube, Stephan, i. A-53; Townsend and Coolidge, i. A-54.
Transmission to Fœtus—Netter, iv. L-23.
Treatment—Kreider, H. G. Beyer, Lee-Goodhardt, i. A-57; Pieragnoli, Green, Clemens, Tordeus, Petresco, Nilsson, i. A-58.

GENERAL INDEX.

Plumbago kandeus, therapeutic uses v. A-110

Pneumaturia iv. K- 57

Pneumonia i. A- 52
  complications i. A- 56
  etiology i. A- 54
  pathology i. A- 52
  transmission to fœtus iv. L- 23
  treatment i. A- 57

Pneumonotomy and pneumonectomy iii. B- 25

Pneumothorax i. A-65, 66; iii. B- 35

Poisoned wounds iii. M- 12
  arrow-wounds iii. M- 12
  human bites iii. M- 12
  snake-bites iii. M- 12

Polar action in electrical currents v. C- 3

Polypnœa v. I- 33

Polyuria, etiology iv. K- 1
  treatment iv. K- 2

Post-mortem phenomena iv. J- 8

Potassium, therapeutic uses v. A-110

Pott's disease, treatment iii. F- 29
  Barwell's splint iii. F- 31
  Mitchell's spine-car or chair iii. F- 29
  Sayre's plaster-of-Paris jacket iii. F- 30
  suspension treatment in ii. B- 15

THERAPEUSIS.

PREGNANCY, DISEASES OF, COMPLICATIONS (*continued*).
  HIGH TEMPERATURE.
  Prem. labor, ii. I-13.
  HYDATID MOLE.
  Dil. of cervix, removal of mass, ii. I-17.
  HYSTEROCELE GRAVIDARUM.
  Crural, Cæsar. op. *Inguinal*, support of ut., forceps. *Ventral*, supports. *Umbilical*, Cæsar. op., Porro op., prem. labor, ii. I-17.
  MENINGITIS, ACUTE.
  Prem. labor after 7th mo., ii. I-13.
  MUSCULAR ATROPHY.
  Prem. labor, ii. I-18.
  NERVOUS DISORDERS—TUBERCULAR MENINGITIS.
  Prem. labor after 7th mo., ii. I-12.
  TYMPANITES.
  Punct. of abd. with med.-sized trocar, ii. I-17.
  UTERUS, FIBROIDS.
  Prem. lab.; forcible reposition under anæsthet.; grad. hydrostat. press.; enuclea. per vag.; version, forceps, craniot.; abdom. section, ii. I-14.
  RETRODEVIATIONS.
  If restoration is not spontan., bring ut. in posit. bef. incarceration takes place; *if incarceration*, reposition. Empty ut. before perform. extirpation, ii. I-20.
  VARICOSE VEINS.
  Pressure on vessels with napkin during labor, ii. I-18.
  VULVA, ŒDEMA.
  Punctures, ii. I-18.
EXTRA-UTERINE.
  Laparot.: *Troublesome hæmorrhage*, plug sac with gauze, placenta removed later, ii. I-21.
HÆMORRHAGES, INTERNAL.
  Laparotomy, ii. I-9.
SIGNS.
  "Hegar's sign:" Compressibility of lower ut. segment, ii. I-4. "Jorissennes' sign:" Slight variation in no. of rad. pulsations, whether standing, sitting, or lying down, ii. I-5.
SURGICAL OPERATIONS DURING.
  Perform any, if wound is kept aseptic, ii. I-19.
VOMITING.
  Correct any abnorm. state of ut. and append.: topical app. to spine; rectal inject. of ℞ Sod. bromid., chloral hyd., āā gr. xx to xxx (1.30 to 1.95 grm.); water and milk, ℥viij (¼ litre)—M. Liq. food only; iced coffee, Vichy and carbonat. waters; rectal inject. of bromide and chloral; dilata. of cervix; glycerin tampons, ii. I-8; reposition of ut. and loc. appl., *if erosion of cervix. If acid dyspepsia*, salol, gr. ij (0.13 grm.); phenol, gr. j (0.065 grm.), in water, ℥j (31.0 grm.), ev. 4 hrs.: cocaine, gr. ss (0.032 grm.), in sol. ev. ½ hr.: cocaine sol. (3% to 10%), gtt. x to xxx, daily; cocaine and vaseline to cervix, morn. and nt., prem. labor, ii. I-9; oxygen inhala., v. A-102.
  FROM ELONGATED UVULA.
  Amputa. of uvula, iv. E-12.

PREMATURE LABOR, INDUCTION OF.
  Tarnier's elastic balloon; Champetier de Ribes's pear-shaped rubber ball, inserted

AUTHORS QUOTED.

PNEUMONOTOMY AND PNEUMONECTOMY — W. Koch, von Openchowski, Zakharevitch, iii. B-26; Joseph O'Dwyer. iii. B-27.

PNEUMOTHORAX — Godlee, A. H. Smith, iii. B-35.

POISONED WOUNDS—ARROW-WOUNDS—Joseph White, iii. M-12.
  HUMAN BITES—Semeleder, iii. M-12.
  SNAKE-BITES—A. Mueller, iii. M-12.

POLAR ACTION IN ELECTRICAL CURRENTS—Glatz, Joffé, v. C-3.

POLYURIA, ETIOLOGY—Westphal, Erb, Buttersack, Guinon, Drummond, Oliver, Woodbury, Wagner, iv. K-1.
  TREATMENT — Da Costa, Opitz, Kibbe, Zenner, anon., iv K-2.

POST-MORTEM PHENOMENA—B.W. Richardson, iv. J-8; Brouardel, Catherine Schipiloff, Mackenzie, iv. J-10; Casper, Devergie, Taylor, Mackenzie, Cones, iv. J-11.

POTASSIUM, THERAPEUTIC USES—Edward Anderson, Huchard, Fournier, H. C. Harris, v. A-100; J. B. Johnson, v. A-111.

POTT'S DISEASE, TREATMENT—S. Weir Mitchell, J. K. Mitchell, iii. F-29; Richard Barwell, iii. F-31; A. F. Messiter, Duret, iii. F-32; Redard, Sayre, W. Arbuthnot Lane, iii. F-33; Lane, Henry Thompson, iii. F-34; Thompson, Pigeon, Macewen, iii. F-35; W. A. Lane, Figueira, Richardson, iii. F-36; Robert H. M. Dawbarn, C. S. Collins, Seguin, L. C. Gray, iii. F-37; Dawbarn, Macewen, iii. F-38.

PREGNANCY—Theophilus Paroni, ii. I-1.
  COMPLICATIONS OF—
    ALBUMINURIA—Tyson, Partridge, Hundley, Gustav Braun, Peter, iii. I-10; Hirst, Meyer, ii. I-11.
    BLINDNESS—Fougeray and Fouchard, ii. I-18.
    CARDIAC LESIONS—Peter, Murray, ii. I-15.
    CHOREA—Herman, Jones, ii. I-12.
    DEFORMED PELVIS—Kufferath, ii. I-24.
    DIABETES MELLITUS—F. A. Packard, ii. I-13.
    ECLAMPSIA—Pilliet, Jurgens, Page, ii. I-11.
    ERYSIPELAS—R. R. Kime, ii. I-14.
    GANGRENE OF FŒTUS—Manley, Florian Krug, ii. I-24.
    HIGH TEMPERATURE—Liebmann, ii. I-13.
    HYDATID MOLE—McNutt, ii. I-17.
    HYDRAMNIOS—Bar, ii. I-18; Walter Lindley, Penney, ii. I-19.
    HYSTERIA—Ernest F. King, Brunon, ii. I-12.
    HYSTEROCELE GRAVIDARUM—Adams, ii. I-16.
    ICTERUS—Illoway, ii. I-13; Lomer, ii. I-14.
    MEASLES—Collins, ii. I-13.
    MENINGITIS—Chambrelent, ii. I-13.
    MUSCULAR ATROPHY—Desnos, ii. I-17.
    NERVOUS DISORDERS—Chambrelent, Brand, ii. I-11.
    PNEUMONIA—Stack, Bradbury, Campbell, Netter, ii. I-15.
    SCARLATINA—Boxall, ii. I-16.
    SYPHILIS—Fournier, ii. I-17.
    TYMPANITES—Wicks, ii. I-17.
    TYPHOID FEVER—Jaggard, ii. I-16.

GENERAL INDEX.

Pregnancy..........................ii. I- 1
complications of..........................ii. I- 10
albuminuria..........................ii. I- 10
blindness..........................ii. I- 18
cardiac lesions..........................ii. I- 15
chorea..........................ii. I- 12
deformed pelvis..........................ii. I- 24
diabetes mellitus..........................ii. I- 13
eclampsia..........................ii. I- 11
erysipelas..........................ii. I- 14
gangrene of fœtus..........................ii. I- 24
high temperature..........................ii. I- 13
hydatid mole..........................ii. I- 17
hydramnios..........................ii. I- 18
hysteria..........................ii. I- 12
hysterocele gravidarum......ii. I- 16
icterus..........................ii. I- 13
measles..........................ii. I- 13
meningitis..........................ii. I- 13
muscular atrophy..........................ii. I- 17
nervous disorders..........................ii. I- 11
pneumonia..........................ii. I- 15
scarlatina..........................ii. I- 16
syphilis..........................ii. I- 17
tympanites..........................ii. I- 17
typhoid fever..........................ii. I- 16
uterus, fibroids..........................ii. I- 14
retrodeviations..........................ii. I- 19
ulceration of cervix..........ii. I- 18
varicose veins..........................ii. I- 18
vulva, œdema..........................ii. I- 18
conception, most probable time of..........................ii. I- 5
diseases of..........................ii. I- 1
extra-uterine (see also Gestation)..........................ii. I- 20
hæmorrhages in..........................ii. I- 9
influence on nutrition..............ii. I- 22
maternal impressions..............ii. I- 23
multiple..........................ii. J- 43
phantom..........................ii. I- 5

THERAPEUSIS.

PREMATURE LABOR, INDUCTION OF (*continued*).
into ut. cav. and inflated; iodof. tampons, ii. I-8, ii. J-9. If *constant hæmorrhage of small quantity*, Hegar's dilator, fol. by tampon sat. with sol. ac. salicyl. (4%), ii. I-7, ii. J-6; intra-ut. inject. of hot carbol. sol. (1%). 10 qts. (10 litres), ii. J-6.
SUBSTITUTE FOR.
Diet during latter mos. of pregn. to dimin. develop. of fœt. Diabetic diet and restrict fluids: *Morn.*, 1 small cup coffee, ʒvj (25 grm.)—Zwieback; *noon*, meat of all kinds, eggs, fish with very little sauce, green vegetables without fat, salad, cheese; *evening*, same, with ℥i 1-8 to 1 3-5 (40 to 50 grm.) of bread, and butter *ad lib.* Avoid water, soups, potatoes, pastry, sugar, beer. Drink for a day, ℥x to xiiss (300 to 400 c.cm.) of red or Moselle wine, ii. J-6.
PROSTATE GLAND, DISEASES.
HYPERTROPHY.
Prostatectomy, perineal and supra-pubic, McGill method, iii. E-29.
INFLAMMATION.
Terebine, v. A-135.
PRURITUS.
℞ Menthol, 1 to 3 p.; alcoh., 50 p.—M. ℞ Menthol, gr. x (0.65 grm.); ol. olivæ, lanolin, āā ℥ss (15.5 grm.)—M. *If stubborn* (of eczema, urticaria, p. senilis), incr. menthol to 10% to 15%, iv. A-49. ℞ Menthol, gr. xv to xlv (1 to 3 grm.); alcoh., fʒxiiss (48.5 grm.)—M. S.: Wash. ℞ Menthol, gr. xlv to ʒiiss (3 to 10 grm.); ol oliv., lanolin, āā ℥j (31 grm.)—M. S.: Liniment. ℞ Menthol, gr. xlv (3 grm.); bals. Peruv., ℈iv (5.20 grm.); lanolin, ℥j (31 grm.)—M. S.: Ointment, iv. A-51. Cone of cocaine in cocao-butter (2%) rubbed in loc., iv. A-62; menthol in alcohol (3% to 6%), v. A-91; jaborandi, v. A-109.
SENILE.
Bran- or starch- baths, iv. A-12; Bathe body with water (40° C.—104° F.) to which add 2 teasp. of fol. mixt.: ℞ Ac. carbol., ʒj (4.0 grm.): glycer., ℥ij (62.0 grm.)—M., then powd. surf. with ℞ Bism. salicyl., 20 p.; amyli, 90 p.—M., iv. A-13; menthol and lanolin, v. A-91.
PSEUDARTHROSIS.
Schüller's method: 1. Cause const. pass. hyperæm. by constrict. elast. tube. 2. Improve gen. condit. 3. Use loc. meas. to promote bone-growth. 4. Loc. op. by antisept. insert. of nickel-plated steel pins, iii. G-18. Aseptic irritat. near epiphys. line, as long as any dif. in the two limbs, iii. G-19. *Mikulicz's method*: Longitud. incis. through periost. and soft pts. at site of fract.: raise periosteum; pack gauze soaked in ol. terebinth.; renew ev. 2 or 3 d., iii. G-19. Strip up periost. and insert lead nail, iii. G-19. *Senn's method*: Antisep. bone-grafts, iii. G-19. Decalcif. bone-chips, iii. G-20.

AUTHORS QUOTED.

PREGNANCY, COMPLICATIONS OF (*continued*).
UTERUS, FIBROIDS—Porak, John Phillips, ii. I-14.
RETRO-DEVIATIONS—A. Martin, ii. I-19; Sperber, W. S. Stewart, C. O'Donovan, Jr., Fraipont, ii. I-20.
ULCERATION OF CERVIX—Chrobak, ii. I-18.
VARICOSE VEINS—J. M. Fort, ii. I-18.
VULVA, ŒDEMA—N. F. S., ii. I-18.
CONCEPTION, MOST PROBABLE TIME—Schneider, ii. I-5.
DISEASES OF—Theophilus Parvin, ii. I-1.
EXTRA-UTERINE—Herman, ii. I-20; Mantel, Hirst, ii. I-21.
HÆMORRHAGES IN—M. Stumpf, anon., Batten, ii. I-9.
INFLUENCE ON NUTRITION—Auvard, ii. I-22.
MATERNAL IMPRESSIONS—W. S. Lowman, J. Wetherby, A. Ross Patterson, M. G. Lowry, J. N. B. Guinn, John Ringwood, Frederick L. Classen, A. B. Leggatt, ii. I-23; J. O. Lowrie, ii. I-24.
MULTIPLE—Eisenhart, ii. J-43; M. H. Vogt, Labusquière, L. Sperling, J. A. Wetherell, R. Rudolph Ball, D. Thomas, F. G. Stephens, ii. J-44.
PHANTOM—Nicoll, ii. I-5.
PLACENTA, DOUBLE—P. Lugeol, ii. I-24.
TRANSMISSION OF BACILLI THROUGH—C. J. Eberth, Critzman, ii. I-24.
PROTRACTED—D. A. McTavish, W. H. Murray, Mervin Maus, E. J. Abbott, Rowland Humphreys, ii. I-23.
SIGNS OF—Nottage, Hegar, Llewelyn Elliott, Jorissenne, ii. I-4; Vander Veer, ii. I-5.
SURGICAL OPERATIONS DURING—Mayo Robson, Tiffany, Gordon, ii. I-19.
VOMITING OF—Guéniot, J. Wissel, Quevedo, Kirkpatrick, ii. I-8; Kingman, R. B. McCall, Willoughby, Fraipont, Weiss, Engelmann and Holtz, Stocker, ii. I-9.

PREMATURE LABOR, INDUCTION OF—Champetier de Ribes, Tariner, E. Chenevière, ii. I-8.
METHODS OF—Arthur H. N. Lewers, Hegar, Krause, Barnes, Mondot, ii. J-6; Champetier de Ribes, Barnes, Tarnier, Vulliet, Dölger, E. Chenevière, ii. J-7.
SUBSTITUTE FOR—L. Prochownick, ii. J-6.

PRIMULA OBCONICA, TOXIC EFFECTS—Charles Oldacres, v. A-111.

PROPEPTONURIA—Loeb, Fischer, von Köppen, iv. K-21.

PROSTATE GLAND, DISEASES—
ANATOMY OF—Joseph Griffith, Harrison, v. J-9.
EXPOSURE BY PERINEAL SECTION—Gukerkandt, iii. E-30.
HYPERTROPHY, TREATMENT—F. S. Watson, A. W. Mayo Robson, McGill, Buckston Browne, H. Kummell, iii. E-29; W. A. Lane, McGill, Bruce Clarke, Jordan Lloyd, Bennett May, Rushton Parker, iii. E-30.

GENERAL INDEX.

Pregnancy (*continued*).
- placenta, double......ii. I- 24
  - transmission of bacilli through......ii. I- 24
- protracted (see also Labor, complications)......ii. I- 23
- signs of......ii. I- 4
- surgical operations during......ii. I- 19
- vomiting of......ii. I- 8

Premature labor, induction of......ii. I-8, ii. J- 6
- methods of......ii. J- 6
  - Hegar's dilators......ii. J- 6
  - intra-uterine colpeurysis......ii. J- 7
  - intra-uterine injections......ii. J- 6
  - Vulliet's intra-cervical tamponade......ii. J- 7
- substitute for......ii. J- 6

Primula obconica, toxic effects......v. A-111

Propeptonuria......iv. K- 21

Prostate gland, diseases......iii. E- 29
- anatomy of......v. J- 9
- exposure by perineal section......iii. E- 30
- hypertrophy, treatment......iii. E- 29

Pruritis, treatment......iv. A-49, 51, 52
- senile, treatment......iv. A- 12

Prussic acid. toxic effects.v. A-111, v. B- 34

Pseudarthrosis, treatment......iii. G- 19

Pseudoleukæmia......iii. K- 21

Pseudoleukæmia cutis......iv. A- 45

Psoriasis......iv. A- 15

Ptomaines and toxines......iv. L- 40
- ptomaine of milk......iv. L- 40
- toxic effects......v. A-111

Puerperal diseases......ii. K- 1
- breast, puerperal......ii. K- 14
- breast-feeding and malaria......ii. K- 14
- convalescence, diet......ii. K- 2
- eclampsia, puerperal......ii. K- 9
  - albuminuria, relation to......ii. K- 9
  - treatment......ii. K- 10
  - with lithæmia......ii. K- 10
- glycosuria and high temperature......ii. K- 13
- hæmorrhage, post-partum......ii. J-49, ii. K- 10
  - low placental insertion and p. succenturiata......ii. J- 49
- treatment......ii. J- 49

THERAPEUSIS.

PSORIASIS, CHRONIC FORM.
Hansen's meth.: Potass. iod., gr. xlv (3 grm.). incr. to gr. ccxxv (15 grm.), daily. Sulphur and vaseline (1 to 10), iv. A-55; alc. sol. anthrarobin (10% to 20%), freshly prepared, v. A-13; chloroform-water, v. A-36; sea-baths, v. D-22.

PUERPERAL DISEASES.

BREAST, DISTENTION AFTER WEANING.
Antipyrin, gr. iij (0.19 grm.), t.i.d., v. A-17.

BREAST-FEEDING AND MALARIA.
If nurse has malaria, change nurse; if both have malaria, do not change, unless milk has injur. effect on child. For child, give quinine hypod., ii. K-14.

CONVALESCENCE, DIET.
Immed. after labor, give warm drink,—cocoa, tea, coffee, or milk,—with carbonated water. *After resting*, cup of animal broth; later, an egg or milk-toast made of stale bread, or other easily-digested food. Continue soft diet till bowels are moved; then give whatever desired, *avoiding* all indigest., fatty, and legum. articles. Give green vegetables, salads, asparagus, etc. Midway betw. each meal and at bed-time, glass of milk containing 2 tablesp. of lime-water, ii. K-2. Petineria alliozea, infus., v. A-105.

ECLAMPSIA, PUERPERAL.
Prophylaxis: Milk diet. *In severe cases*, chloral, gr. xlv to lx (3 to 4 grm.), well dil. to prev. vomiting, daily. *During seizure*, give chloral by stomach-tube, gr. cxxxv to cl (9 to 10 grm.). incr. to gr. ccxl to cclxx (16 to 18 grm.), in 24 hrs. *When no renal disease*, caffein citrate [gr. j to v (0.065 to 0.33 grm.)]; pilocarpine nitrate, gr. ⅓ (0.02 grm.), hypod., ii. K-10; chloral, v. A-31; jaborandi, v. A-85; pot. bitart., v. A-110.

HÆMORRHAGE, POST-PARTUM.
Dührssen's tampon; pack into ut. strip of iodof. gauze 5½ yds. (5 metres) long; fill out vagina with same; remove in 24 to 48 hrs., ii. K-10. Cornutin, gr. 1-32 to 1-6 (0.002 to 0.010 grm.) hypod., ii. K-11. Empty bladder; forcible frictions; intra-uterine irriga. (hot and cold water), ergot; plug ut. cav. with iodof. gauze, ii. J-49; absorb. cotton sat. with creolin sol. plugged into ut. In *severe cases*, compression of aorta through post. ut. wall against verteb. col. by hand within ut. ℞ Cornutin, gr. ¾ (0.048 grm.); aq., ʒiiss (10 grm.)—M. ft. sol. et adde ac. hydrochlor., gtt. iv—M. Sig.: Use hypod. ℞ Cornutin, gr. 1⅛ (0.073 grm.); aluminii hydrat., gr. xlvj (2.98 grm.); aq., glycerin, āā p. æq. q.s. ut ft. massa—M. et ft. pil. no. xx. Sig.: 2 to 3 pills, ii. J-50. Cornutin, gr. 1-32 to 1-10 (0.002 to 0.007 grm.), hypod., or gr. 1-16 to 1-6 (0.004 to 0.010 grm.) intern., v. A-52.

ISCHURIA.
Teach pat. to urinate on the back before labor, ii. K-13.

AUTHORS QUOTED.

PRURITUS, TREATMENT—Eloy, iv. A-49; anon., iv. A-51; Porter, iv. A-52.
- SENILE, TREATMENT—Floy, iv. A-12.

PRUSSIC ACID, TOXIC EFFECTS—J. Geppert, v. A-111.

PSEUDOLEUKÆMIA CUTIS—Joseph, E. Wagner, iv. A-45.

PSORIASIS—Ducrey, Lusiani, Hansen, Bardizzi, iv. A-15.

PTOMAINES AND TOXINES—Brieger, iv. L-40.
- PTOMAINE OF MILK—Delfin, iv. L-40.
- TOXIC EFFECTS—W. R. Chittick, v. A-111.

PUERPERAL DISEASES—Walter P. Manton, ii. K-1.
- BREAST, PUERPERAL—E. F. Cordell, ii. K-14.
- BREAST-FEEDING AND MALARIA—Rouvier, ii. K-14.
- CONVALESCENCE, DIET—Charles Meigs Wilson, ii. K-2.
- ECLAMPSIA, PUERPERAL—
  - ALBUMINURIA, RELATION TO—Lantos, Osthoff, Blanc, iv. K-9.
  - TREATMENT—Auvard, Blanc, Bolton Corney, Fourrier, ii. K-10.
  - WITH LITHÆMIA—McKeough, DeWitt, Harriet L. Harrington, ii. K-10.
- GLYCOSURIA AND HIGH TEMPERATURE—Cameron, ii K-13.
- HÆMORRHAGE, POST-PARTUM—Herman Born, Becker, Eckerlein, Dührssens, ii. K-10; Thomson, ii. K-11.
  - LOW PLACENTAL INSERTION AND P. SUCCENTURIATA—Leopold, ii. J-49.
  - TREATMENT—O. Piering, Schauta, Dührssen, Olshausen, Veit, Fehling, M. Graefe, ii. J-49; Born and Eckerlein, von Ramdohr, Heinrich Amon, Hoyos, Séjournet, H. Thomson, Kobert, ii. J-50.
- INSANITY, PUERPERAL—Savage, Christian, Churchill, Sprimont, Korsakoff, ii. K-12.
- ISCHURIA—Olshausen, Schatz, Schwartz, ii. K-12; Schultz, ii. K-13.
- PEPTONURIA IN THE PUERPERIUM—Thompson, ii. K-13.
- PHLEGMASIA ALBA DOLENS—Widal, Vilon, Bond, ii. K-11.
- PULSE AND TEMPERATURE, PUERPERAL—Temesvàry and Bäcker, Hamilton, ii. K-3.
- RHEUMATISM, PUERPERAL—Hamill, Tison, ii. K-13.
- SEPTICÆMIA—PYÆMIA, PUERPERAL—Robert Barnes, ii. K-3; Hirst, ii. K-4.
  - AUTO-INFECTION—Kaltenbach, von Szabó, ii. K-5; Thorn, Szabó, Strauss and Toledo, ii. K-6.
  - ENDOMETRITIS, PUERPERAL—Pozzi, Massarenti, ii. K-7; Charpentier, Chartier, Porak, Rooney, Grandin, Schultze, Parish, Taylor, Max Runge, A. Martin, ii. K-8; Runge, ii. K-9.
  - ETIOLOGY—Smith, Fehleisen and Rosenbach, Lustig, Clivio and Monti, Bumm, Widal, Cornil, ii. K-4; Babes, Legrain, Bumm, Ashton, ii. K-5.

GENERAL INDEX.

Puerperal diseases (*continued*)
- insanity, puerperal..............ii. K- 12
- ischuria..............................ii. K- 12
- peptonuria in the puerperium ii. K- 13
- phlegmasia alba dolens.........ii. K- 11
- pulse and temperature, puerperal..............................ii. K- 3
- rheumatism, puerperal ....ii. K- 13
- septicæmia—pyæmia, puerperal ii. K- 3
  - auto-infection......................ii. K- 5
  - endometritis, puerperal......ii. K- 7
  - etiology..............................ii. K- 4
  - treatment...........................ii. K- 6
- shock, post-partum................ii. K- 11
- uterus, inversion of puerperal.ii. K- 13
  - involution ....ii. K- 1
    - ergot, effect on...............ii. K- 2
    - faradization.....................ii. I- 22
    - in pathological conditions ii. K- 1
    - under normal conditions..ii. K- 1

Pupil, action of snake-poison on...v. B- 46

Purpura hæmorrhagica, treatment..............................iv. A- 53

Pylorectomy..............................iii. C- 18

Pyloric and cardiac stricture.......iii. C- 21
- digital divulsion...................iii. C- 21

Pyloroplasty ....iii. C- 19

Pyo-pneumothorax.....................iii. B- 25

Pyridin, therapeutic uses............v. A-111

Pyrocatechin.................................v. I- 24
- pyrocatechinuria.................iv. K- 35

Pyrodin — hydracetin, therapeutics and toxicology................v. A-111

Pyrogenine..................................v. B- 43

Pyuria, miliary.........................iv. K- 60

Quebracho, therapeutic action .....v. A-114

Quinine—cinchona, therapeutics and toxicology.......................v. A-114

THERAPEUSIS.

PUERPERAL DISEASES (*continued*).

PHLEGMASIA ALBA DOLENS. Rest; after inflam. action has ceased apply elastic pressure, ii. K-11.

PULSE AND TEMPERATURE, PUERPERAL. As prophyl., use antiseptics during labor, sublimate, silico-fluoride of sodium (salufer), etc., ii. K-3.

RHEUMATISM, PUERPERAL. Salicylates, alkalies, counter-irritants, electric., local rest, ii. K-14.

SEPTICÆMICA—PYÆMIA, PUERPERAL. Prophyl. douche, hot 122° F. (50° C.), for 6 d. after labor, ii. K-6; warm vaginal carbolic lotion, with Morosow's appar. Irriga. once daily, carbolic lotion (intra-uterine), with Breus-Bozeman-Fritsch tube or Kurz's catheter, continuously for hrs., until temp. falls to normal and pulse-rate lowered; repeated if subseq. rise of temp., ii. K-7.

ENDOMETRITIS. Pure anhyd. ac. carbol. applied on cotton tampon, introd. into ut. or vag. for 10 min.; if ut. is dilated, inject ʒi% (50 grm.) into ut., ii. K-7. Curette. Supra-vaginal hysterect. for retained putrid placenta in bicorn. ut. *If peritonitis and subperiton. abscess*, laparotomy. Alcohol in large doses, with lukewarm baths. Antipyrin, and large doses of alcohol, ii. K-8. Baths 80° to 86° F. (26.7° to 30° C.), 3 to 8 min.; not over 4 baths in 24 hrs.; 1 or 2 generally suffic. Before and aft. bath, give stimulants; avoid antipyretics, ii. K-9. Bichloride injections (1 to 2000), v. A-59; hg. biniod. sol. douche, v. A-60; terebene, v. A-135.

UTERUS, INVERSION OF PUERPERAL. If reposition impossible, long decubitus in a recent case may cause spontaneous cure, ii. K-13.

INVOLUTION. Avoid ergot unless clots in uterus, ii. K-2; potass. permang., v. A-104.

SUBINVOLUTION. Faradization of ut. after confinement: poles on abd. on both sides of ut. where neck joins body; grad. incr. current, ii. I-22.

PYROCATECHIN, Halliburton, v. I-24.

PURPURA HÆMORRHAGICA. Argent. nitr., gr. 1-5 (0.013 grm.), in bread-crumb after food, 2. t. d. Argent. nitr., gr. ⅛ (0.008 grm.), in pil. t. i. d., iv. A-53.

PYRODIN, TOXIC EFFECTS. Milk diet, v. A-113.

QUININE, TOXIC EFFECTS. Sod. brom., sm. dos., ev. 2 h.; suspend quin., use other drugs, eucalypt., arsen., etc., v. A-115.

AUTHORS QUOTED.

PUERPERAL DISEASES, SEPTICÆMIA (*continued*).

TREATMENT—Kaltenbach, Poten, Mermann, Leopold, Leith Napier, Deipser, ii. K-6; Neswedski, Snegirew, Pinard, Morosow, Haynes, Kurz, Breus-Boseman, Fritsch, ii. K-7.

SHOCK, POST-PARTUM—Ferguson, Credé, ii. K-11.

UTERUS, INVERSION OF PUERPERAL—Késmársky, ii. K-13.

INVOLUTION—

ERGOT, EFFECT ON—Pinzani, ii. K-2.

FARADIZATION—Kraskowsky, ii. I-22.
IN PATHOLOGICAL CONDITIONS—Heschl, Sinclair, Charpentier, Milsom, ANNUAL 1888, Sänger. Dittrich, ii. K-1.

UNDER NORMAL CONDITIONS—Temesváry and Bäcker, ii. K-1.

PUPIL, ACTION OF SNAKE-POISON ON—Feoktistow, v. B-46.

PURPURA HÆMORRHAGICA—Poulet, iv. A-53.

PYLORECTOMY—Park, Sir William Stokes, Southam, McArdle, Buchanan, ANNUAL 1889, F. Ortmann, Mikulicz, iii. C-18; Rydygier, iii. C-19.

PYLORIC AND CARDIAC STRICTURE—

DIGITAL DIVULSION—Loreta, iii. C-21; Frederick Treves, Haggard, iii. C-22; Loreta, Treves, Barton, Kinnicut and Bull, iii. C-23; Loreta, Bull, Senn, Abbe, Heinecke, iii. C-24.

PYLOROPLASTY—Ortmann, Mikulicz, iii. C-19; Heinecke, Mikulicz, Bardeleben, Lauenstein, Angerer, Ziemssen, iii. C-20; Lauenstein, iii. C-21.

PYRIDIN, THERAPEUTIC USES—J. A. Robison, G. Sée, v. A-111.

PYROCATECHIN—Halliburton, v. I-24.

PYROCATECHINURIA—Magni, iv. K-35.

PYRODIN—HYDRACETIN, THERAPEUTICS AND TOXICOLOGY—Paul Guttmann, v. A-111; R. Lépine, Dreschfeld, R. Lépine, George Lemoine, v. A-112; Renvers, Th. J. Zerner, Luigi Cantu, Filehne, v. A-113; James K. Crook, v. A-114.

PYROGENINE—Roussy, Hayem, v. B-43.

PYURIA, MILIARY—Handford, Walker, iv. K-60.

QUEBRACHO, THERAPEUTIC ACTION—Edwin M. Hale, v. A-114.

QUININE — CINCHONA, THERAPEUTICS AND TOXICOLOGY — Eugen Wilbuschewicz, Charles M. Seltzer, H. Bocquillon-Limousin, Limousin, P. Vigier, Dulon, Pasquier, v. A-114; Benermann, F. E. Stewart, anon., Krastilevsky, D. C. Hewson, James P. Parker, S. C. Zavitziano, George T. Welch, B. Frank Humphreys, I. E. Atkinson, Tomaselli, Mostato, v. A-115; W. L. Schenck, H. C. Coe, Edward Evans, L. G. Peters, E. G. Hunt, v. A-116.

GENERAL INDEX.

Rabies.......................................iii. O- 1
  etiology and pathology..........iii. O- 1
  treatment...........................iii. O- 5

Rachitis, pathology and treatment...........................iii. F- 17
  Bruce's brace.......................iii. F- 29
  Dixon Jones's suspension apparatus..........................iii. F- 28
  osteoclast in re-dressing deformities of limbs..................iii. F- 25
  Robin's osteoclast..............iii. F- 26
  osteotomy for anterior curves of leg-bones.......................iii. F- 21

Railway spine...........................iv. J- 3

Ranula, congenital.....................iii. J- 8

Raynaud's disease — etiology and pathology.......................ii. C- 46

Rectum, cancer of.....................iii. D- 32
  colectomy.........................iii. D- 36
  colotomy...........................iii. D- 35
  stricture of.........................iii. D- 32

Rectum and anus, diseases.........iii. D- 1
  new instruments — Kelsey's fistula-knife.......................iii. D- 24

Reflex, palm (see Brain, physiology)..............................ii. A- 16

Relapsing fever...........................i. H- 63

Resection of bones.....................iii. G- 9
  clavicle...............................iii. G- 10
  ensiform cartilage................iii. G- 10
  lower extremity..................iii. G- 11

THERAPEUSIS.

RABIES.
Chew leaves of the American aloe (*Agave Americana*, L.); Pasteur inoculation treat., iii. O-5. ℞ Hoàng-nàn, 2½ p.; realgar, 1½ p.; alum, 1½ p.—M. S.: Gr. ij to xxxviij (0.15 to 2.50 grm.) pro dos., with weak vinegar, v. A-56.

RACHITIS.
HYGIENIC.
Avoid press. on sides of thorax, walking, and other mechan. prod. of deform.; change of climate or dry, warm quarters, good food; phosphorus, iron, pepsin or simil. remed.; lukewarm baths, grad. cooling off, fol. by brisk friction, iii. F-21.
MEDICINAL.
Phosphorus (Thompson's sol.): ℞ Phosphori, gr. j (0.065 grm.); alcoh. absol., ♏ccel (21.56 c. cm.); spts. menth. pip., ♏x (0.62 c. cm.); glycerin., ℥ij (62.20 grm.)—M. S.: 2 to 4 yrs., 6 drops t.i.d., to be incr. 1 drop ev. wk. to 10 drops, iii. F-18; phosph. in oily sol. or emuls., occas. withholding to avoid fatty degen. of liver; ol. morrh. and butter; antirachitic diet, iii. F-19; lime and lime-salts, warm clothes, fresh air, sunlight, diet. ℞ Phosphori, gr. ¼ (0.016 grm.); carb. bisulph., gtt. vj; aq. destil., ℥iv (124.41 grm.)—M. S.: Teasp. daily or ½ teasp. 2 t.d. after meals. Tonics—iron, ol. morrh., arsenic; diet, iii. F-20. Sodii phosphat., v. A-107.
SURGICAL.
If early, mechan. support and genl. treat.; *if late*, after eburnation of bones, make osteotomy or osteoclasis, iii. F-18; osteot. for ant. curves of leg-bones, iii. F-21; osteot. and excis. of knee, iii. F-22. Osteotomy not under 6 to 15 yrs.; splints, band., and constitu. treat. for young children; osteoclasis, iii. F-25; Robin's osteoclast (sub-condyloid), iii. F-26; osteot., with dress. of salicylic or salufer wool held by gauze bandage, antisepsis, iii. F-27; Dixon-Jones's suspension treat.; Bruce's brace, iii. F-28

RANULA, CONGENITAL.
Empty sac with trocar. Incise sac; swab with arg. nitr. fus. (Gross and Tillaux's meth.). Carbolized seton, iii. J-8.

RECTUM, CANCER OF.
Resection; Levy's op., iii. D-34. Ullman's op., Kraske's op., iii. D-35; colotomy, iii. D-35; colectomy, iii. D-36; lumbar colotomy, iii. C-39; inguinal colotomy, iii. C-41. "Kelsey's meth." of securing bowel to prevent dislog. by vomiting, etc. After drawing sigm. flex. outside abd. cav., pass a hair-lip pin at mid of wnd. through its edge, then through mesent. close to bowel, at junct. of low. and mid. third of exposed loop, and bring out through edge of wnd. on opp. side. "Madyl's meth.:" Hard-rub. cyl. covered with iodof. gauze, passed through mesent., iii. C-43. Sulphonal, for insomnia, gr. xl (2.60 grm.), v. A-129.

AUTHORS QUOTED.

RABIES—
ETIOLOGY AND PATHOLOGY—Anrep, Di Vestea and Zagari, Bardach, iii. O-1; Welch, Pasteur, Perroncito and Carita, Bardach, iii. O-2; Helman, Högyes, Pasteur, Desguin, Peyraud, iii. O-3; anon, Pasteur, Victor Horsley, iii. O-4.

TREATMENT—Avila and Pena, Horsley, Pasteur, Provincial Medical Journal, Drzewiecki, Pasteur, Richards, iii. O-5; Pasteur, Grancher, Lutaud, Drzewiecki, Kischenski, iii. O-6; Drzewiecki, Medical Press, Pasteur, iii. O-7.

RACHITIS, PATHOLOGY AND TREATMENT—Wegner, Kissel, Kassowitz, Friese, Jacobi, Montmolli, Hartwitz, Hochsinger, Anna Schabanowa, Henry W. Berg, Thompson, Hazard, iii. F-18; Wegner, Hartwig, F. Levison, Hegent, Cheadle, Bland Sutton, iii. F-19; H. C. Dembitz, Snow, Freer, Jacobi, Toplitz, Ritter, iii. F-20; Henoch, Robert J. Lee, Snow, iii. F-21.

OSTEOCLAST IN RE-DRESSING DEFORMITIES OF LIMBS—Kenneth M. Douglass, Robin, iii. F-25; Robin, iii. F-26; Robin, iii. F-27.

OSTEOTOMY FOR ANTERIOR CURVES OF LEG-BONES—De Forest Willard, iii. F-21; John A. Wyeth, iii. F-22; Joel E. Goldthwaite, iii. F-23; E. Noble Smith, iii. F-24; Ogston, Adams, Barker, Macewen, Barwell, A. Mayo Robson, Chotzen, Macewen, iii. F-25; A. W. Mayo Robson, iii. F-27; Charles N. Dixon Jones, Macewen, Lister, Charles E. Bruce, iii. F-28.

RAILWAY SPINE—H. H. Smith, iv. J-3; Charcot, iv. J-4.

RANULA, CONGENITAL—Menocal de Cardenas, Gross and Tillaux, Fleischmann, iii. J-8.

RAYNAUD'S DISEASE, ETIOLOGY AND PATHOLOGY—Collier, ii. C-46; Collier, Hochenegg, ii. C-47; Curtis, Fox, Bramann, ii. C-48; von Bergmann, Bland Raynaud, Barlow, Porter, ii. C-49; Pasteur, Morgan, West, Warfvinge, Cattle, Wetherell, Kingdon, Tannahill, Totsuka, Waldo, Gibson, Garland, O'Connor, Beevor, Massy, Macpherson, ii. C-50.

RECTUM, CANCER OF—Jessop, iii. D-32; Cripps, Levy, Kraske, iii. D-34; Ullman, Kraske, Senn, Albert, iii. D-35.
Colectomy — Kendal Franks, Bryant, Treves, iii. D-36.
Colotomy — Allingham, Jr., Cripps, Kelsey, iii. D-35.

STRICTURE—Bryant, Kelsey, iii. D-32.

RECTUM AND ANUS, DISEASES—Charles B. Kelsey, iii. D-1.

RELAPSING FEVER—Peter, Obermaier, i. H-63.

GENERAL INDEX.

Resection of bones (*continued*).
  sacrum ....iii. G- 10
  spine ....iii. G- 9
  sternum ....iii. G- 10
  upper extremity ....iii. G- 11

Resorcin, therapeutic uses ....v. A-116

Respiration, action of snake-poison on ....v. B- 47
  effect of heat on ....v. I- 33

Respiration and heat regulation ....v. I- 31
  absorption of oxygen and carbon dioxide ....v. I- 31
  heat production and dissipation ....v. I- 31

Retroperitoneal fatty tumor ....iii. C- 6

Rheumatism, acute and chronic ....i. K- 1
  etiology ....i. K- 1
  pathology and pathological anatomy ....i. K- 3
  treatment ....i. K- 6
    acute attacks ....i. K- 6
    chronic ....i. K- 8

Rheumatism and gout ....i. K- 1

Rhinitis, acute ....iv. D- 5
  atrophic ....iv. D- 9
  cholesteatomatous ....iv. D- 4
  chronic, simple ....iv. D- 5
  hypertrophic ....iv. D- 6
  membranous ....iv. D- 5
  syphilitic ....iv. D- 10

THERAPEUSIS.

RELAPSING FEVER.
Rest and nourishment, i. H-63.

RETROPERITONEAL FATTY TUMOR.
Exploratory incis., iii. C-6.

RHEUMATISM.

ACUTE ATTACKS.
Salicylates, antipyrin, antifebrin, salol *to relieve pain and pyrexia; later*, alkaline salts and alteratives; incr. action of organs of secretion, i. K-6; complete phys. rest and extern. warmth, with salicin and alkalies, i. K-8; ammon. chloride, v. A-12; antipyrin, v. A-14; betol, v. A-23; naregamia, v. A-95; phenacetin, gr. xiv (0.90 grm.), 2 or 3 t.d., v. A-105; pyrodin, gr. 1-6 to ⅙ (0.01 to 0.03 grm.), in div. doses during day, in muscular form, v. A-112; neutr. hydrochlor. quin., hypod., v. A-115; resorcin, v. A-116; cresol. salicyl., v. A-120; sod. dithiosalicylate II gr. iij (0.2 grm.), 2 or 3 t. d., v. A-121; veratrum vir., v. A-138.

CARDIAC SYMPTOMS
Blister 3 by 4 in. (7.5 to 10 cm.) for 8 hrs. to card. reg., fol. by wool dressing, and preced. in pleth. subj. by leeches in pericard. reg., or cups on back betw. inf. ang. of scap. and spin. col.; bleeding in except. cases, i. K-7.

CHRONIC.
Tinct. rhus tox., gtt. ss, t. i. d.; movement before adhes. formed, daily, even if painful, i. K-8; phytolacca-root, v. A-109. Tinct. rhus tox., ⅙-drop doses, v. A-117. Contrexéville, Marienbad, and Wildungen waters, v. D-24; Strathpeffer (Scotland) waters, v. D-25; thermal treat. at Bath; Carlsbad, v. D-26. Néris-les-Bains, v. D-27. Waters of Vittel and Ribeauville; thermal station of Hammann—R'hira (Egypt), v. D-28.

IN CHILDREN.
Warm clothes and bedding: protect. from cold and damp curr. of air; ice-bag or cold wet cloths evy. ½ to 1 hr. to affect. joints; in anæmic cases, warm cloths. *Painful joints:* Cloths wet with sol. morph. or chlorof. cov. with oiled silk. *Intern.:* Sod. salicyl. for 3 to 5 d.; quin. alk. salts or waters—Vichy, sod. bicarb. or nitrates; potass. iod., sod. iod. *when chronic;* absol. rest, *when card. compl.*, i- K-7.

RHINITIS.

ACUTE.
Ac. salicyl., gr. xx (1.34 grm.), in liq. ammon. acetat., 3 or 4 t. d.; dry feet, iv. D-5. Inhala. of chlorof. and ammon., v. A-12.

ATROPHIC.
Galvanic curr., pos. pole to nape of neck, neg. pole to nasal M. M. by means of copper wire wrapped with absorb.-cott. pledgets, moistened; curr. mild, grad. incr.; 4 to 15 mins., 3 or 4 t. a wk.; cleanse M. M. bef. applica. Chloride-of-silver battery. Creasote and glyc., ää p. seq. loc., iv. D-9. ℞ Cal., 1 p.; hydrarg. oxide, 1 p.;

AUTHORS QUOTED.

RESECTION OF BONES—

CLAVICLE—Folker, Jessett, Tansini, Rouse, iii. G-10; Despres, iii. G-11.

ENSIFORM CARTILAGE—Rinonapoli, iii. G-10.

LOWER EXTREMITY — Page, Gibney, Clay, Polaillon, Gibney, Vincent, Mikulicz, Renton, Schwartz, Championnière, Dukeman, Nancrede, Barton, Jones, Abbe, Neve, Heydenreich, iii. G-11.

SACRUM—Wiedow, iii. G-11.

SPINE—Dawbarn, White, iii. G-9; Duncan, iii. G-10.

STERNUM—Steinheil, iii. G-10.

UPPER EXTREMITY — Polaillon, Buffet, Berger, Jay, Briggs, iii. G-11.

RESORCIN, THERAPEUTIC USES—Rodrigues A. Guiao, Albert Leblond and Baudier, v. A-116; J. C. Erwin, H. Amon., Merck, v. A-117.

RESPIRATION, ACTION OF SNAKE-POISON ON—Feoktistow, v. B-47.

EFFECT OF HEAT ON—Richet, Ott, v. I-33.

RESPIRATION AND HEAT REGULATION — ABSORPTION OF OXYGEN AND CARBON DIOXIDE—Bohr, Jolin, ANNUAL 1888, v. I-31.

HEAT PRODUCTION AND DISSIPATION—Ott, v. I-31; Fredericq, Ott, White, v. I-32.

RETROPERITONEAL FATTY TUMOR — H. H. Mudd, iii. C-6.

RHEUMATISM, ACUTE AND CHRONIC—

ETIOLOGY — Popow, ANNUAL 1889, T. E. Craig, Leonard, Weber, i. K-1; Edlefsen, Friedländer, Hirsch, Mantle, Feltkamp, Jürgensen, Pel, B. W. Richardson, Alexander Harkin, i. K-2.

PATHOLOGY AND PATHOLOGICAL ANATOMY—Harkin, T. E. Craig, B. W. Richardson, i. K-3; Halford, i. K-4; W. B. Cheadle, i. K-5; Cheadle, Barton, anon., i. K-6.

TREATMENT—

ACUTE ATTACKS, ADULTS—ANNUAL 1889, i. K-6; Alexander Harkin, i. K-7; Cheadle, i. K-8.
CHILDREN—A. Jacobi, i. K-7.
CHRONIC—John Aulde, Trastour, i. K-8.

RHEUMATISM AND GOUT—N. L. Davis, i. K-1.

RHINITIS, ACUTE—Le Roy Dibble, S. Wilton Hope, iv. D-5.

ATROPHIC—Schuchardt, Jirmünsky, Hartman, Delavan, F. Massei, Ferreri, iv. D-9; Bouchut, Ebstein, Potter, iv. D-10.

CHOLESTEATOMATOUS — Potiquet, Duplay, Cozzolino, Bories, iv. D-4.

CHRONIC, SIMPLE—Rankin, iv. D-5.

HYPERTROPHIC—Spencer Watson, Seiss, A. Gougenheim, Barbier, Chatellier, Scanes Spicer, iv. D-6; Major, Knight, Holbrook Curtis, Hénocque, Sattler, N. Wolfenden, Ad. Brouner, iv. D-7; Ziem, Jonathan Wright, A. Ruault, Sourdrille, Gouguenheim, Suchannek, Fritsche, Seifert, Carl Stein, Holste, McGahan, iv. D-8; Astier, iv. D-9.

GENERAL INDEX.

Rhinoplasty..............................iii. J- 14

Rhubarb, toxic effects.................v. A-117

Rhus aromaticus, therapeutic uses.v. A-117

Rhus toxicodendron, therapeutic uses..............................v. A-117

Ribs, resection of diseased...........iii. B- 19
  osteochondroma....................iii. B- 19
  osteosarcoma.......................iii. B- 19

Roburite, toxic effects..................v. A-117

Rubidium ammonium bromide.....v. A-118

Rubus chamæmorus, therapeutic uses v. A-118

Saccharin, hygiene of....................v. F. 21
  therapeutic uses.....................v. A-119

Sacral and lumbar plexuses and cauda equina, lesions......ii. C- 4

Saddle-nose, treatment...............iii. G- 30

Salamandre terreste.....................v. B- 43

Salicylic acid—salicylates............v. B- 44
  therapeutics and toxicology....v. A-120

Salivary calculi.........................iii. J- 8

Salivary ducts, wounds...............iii. J- 8

Salivary glands, suppuration of...iii. J- 8

Salix nigra, therapeutic uses.......v. A-122

Salol, in skin diseases.............iv. A-49, 55
  therapeutic uses....................v. A-122

Salt of sorrell, toxic effects...........v. A-122

Sandwich Islands, imported diseases in....................................v. E- 31

Sanitary movement......................v. F- 2
  Africa.......................................v. F- 3
  Belgium....................................v. F- 6
  England....................................v. F- 4
  France......................................v. F- 6
  Germany...................................v. F- 5
  Italy...v. F- 2
  literature.................................v. F- 6
  United States.............................v. F- 4

Sapotoxin—senegin—cyclamin.....v. B- 44

THERAPEUSIS.

Rhinitis, Atrophic (*continued*). pulv. sacchar., 20 p.—M. S.: Snuff. Bals. Peruv. app. loc. ev. day, plug of cotton soaked with same left in deep parts of nose. Sol. of menthol in ol. petrolina, iv. D-10.

Chronic, Simple.
Sol. cocaine (4%) loc. to nares and throat, fol. by vaseline to same, iv. D-6.

Hypertrophic.
Pot. sozoiodol and talc (1 to 1 or 1 to 2) insuffl. when *profuse discharge*; zinc, sozoiodol and talc (1 to 12½ to 1 to 7½) insuffl. when *scanty secretion*. Aluminium acetico-tartar.; glycerin tampons (1 to 4, left 1 to 4 hrs.), incr. strength until eq. pts. of glyc. and wat. are used, iv. D-8. Ac. lactic., ʒiiss (10 grm.), to water, ℥ss (15.0 grm.), app. to turb. body ev. 3 d., or daily if secondary infl. is insignif., iv. D-9; ichthyol, v. A-80; sod. sozoiodol. (5% to 7% sol.) in douche or local application, v. A-124.

Membranous.
Antisept. and astring. lot.; atrop. loc., iv. D-5.

Syphilitic.
Med. dos. of pot. iod. when *tumefact. is great*. In *adhesions*, knife preferred to cautery; avoid perfora. of bone, iv. D-10. In *meningeal complication*, pot. iod., ʒj (4 grm.), t. i. d., iv. D-11. For *fœtor*, creolin and salt water (gtt. vij to 1 quart), v. A-48; sol. sod. sozoiodol (5% to 7%), v. A-124.

Ribs.

Tumors.

Osteochondroma.
Resect. of rib., drainage, iodof. gauze, and moss-dress., iii. B-19.

Osteosarcoma.
Resect. of rib, antiseptic dress. without drainage, iii. B-19.

Salivary Calculi.
Extr. *per vias nat.*; incis.; ulcera., iii. J-8.

Salivary Ducts, Wounds.
Cut, leaving fistula: arg. nitr. fus. *Division during excretion op.*: Gland. end dissect. back, insert. into mouth, careful sut. of wnd., iii J-8.

Scabies.
℞ Ac. naphtoic., cret. alb., sap. vir., āā ʒj (3.90 grm.); adipis, ℥j (31 grm.)—M., iv. A-51. Petroleum-soap: Castile-soap, 100 p.; alcoh. and petroleum, āā 50 p.: wax, 40 p.—M. May add talc for consistence and ess. mirbane for perfume. ℞ Ol. amygdal. dulc., ol. petrolei, āā p. æq., iv. A-57. Mixt. of cupr. sulph., pepper, and sapo viridis, v. A-45.

Scarlet Fever,

Prophylaxis.
1. Sponge-bath mn. and evg. with tep. subl. sol. (4 to 1000) when erup. app. 2. Wash hair once daily with same sol. and also sol. borax (1 to 250). 3. Disinfect urine, fæces, and sputa, also dischg. from ears and nose, with subl. sol. (1 to 1000). 4. When pat. leaves bed, give warm soap-bath, sponge with subl. sol. (1 to 4000), wipe dry and anoint with ℞ Sod.

AUTHORS QUOTED.

Rhinitis (*continued*).

Membranous—Potter. Bischofswerder, Gluck, Chapin, Seifert, iv. D-5.

Syphilitic—J. N. Mackenzie, Michelson, J. E. Nichols, Goodwillie, De Blois, iv. D-10; Jarvis, Loomis, Trousseau, iv. D-11.

Rhubarb, Toxic Effects—Litten, v. A-117.

Rhus Aromaticus, Therapeutic Uses—Eloy, v. A-117.

Rhus Toxicodendron, Therapeutic Uses—John Aulde, v. A-117.

Ribs, Resection of Diseased—P. Bissenfeld, N. Senn, iii. B-19.

Roburite, Toxic Effects—Anon., anon., James Ross, v. A-118.

Rubidium Ammonium Bromide—Laufenauer, anon., v. A-118.

Rubus Chamæmorus, Therapeutic Uses—V. Bouchoueff, v. A-118.

Saccharin—
  Hygiene of—Provin. Med. Journ., v. F-22.
  Therapeutic Uses—Constantin Paul, Marfan, G. P., Dujardin-Beaumetz, Worms, Pavy, Const. Fahlberg, H. Macnaughton Jones, Fournier, Armin Petschek and Th. J. Zerner, v. A-119.

Sacral and Lumbar Plexuses and Cauda Equina, Lesions—Mills, ii. C-4; Imbert Gourbèyre, Erb, Stevens, ii. C-5.

Salamandre Terreste—Phisalix and Langlois, v. B-43.

Salicylic Acid—Chopin, v. B-44.
  Salicylates, Therapeutics and Toxicology—Lauriston E. Shaw, anon., Letzinski, Paul Chéron, Jaccoud, Pullman, v. A-120; H. Lindeborn, Baum, O. Liebreich, Paul Chéron, Lauriston E. Shaw, H. C. Harris, John J. Berry, Huber, G. A. Gibson and R. W. Felkin, v. A-121.

Salivary Calculi—Princeteau, Clark, Parry, Brown, Pilliet, Radouan, iii. J-8.

Salivary Ducts, Wounds—Guder, Spitzer, iii. J-8.

Salivary Glands, Suppuration of—Anon., iii. J-8; A. Hanau, iii. J-9.

Salix Nigra, Therapeutic Uses—F. T. Paine, v. A-122.

Salol, in Skin Diseases—Schwimmer, iv. A-49.
  Therapeutic Uses—H. Mabbett, Loewenthal, W. L. Carr, Lombard, Corner, anon., v. A-122.

GENERAL INDEX.

Scabies, anatomy .... iv. A- 2
  treatment .... iv. A- 51

Scarlet fever .... i. I- 1
  complications .... i. I- 11
  epidemics of .... iv. M- 5
  etiology .... i. I- 1
  prophylaxis .... i. I- 11
  sequelæ .... i. I- 13
  symptomatology .... i. I- 5
  treatment .... i. I- 13

Scarlet fever and measles .... i. I- 1

Sciatica (see Neuralgia) .... ii. C- 38

Scillitin .... v. B- 45

Sclerema, in newborn .... ii. L- 19

Scotch douche .... i. C- 9

Scurvy—pathology and treatment. ii. E- 25

Secretion, physiology .... v. I- 34
  innervation of glands .... v. I- 35
  mucous glands, fresh cells .... v. I- 34
  salivary glands .... v. I- 34
  urinary pigments .... v. I- 36

Seminal vesicles, diseases .... iii. E- 5
  abscess .... iii. E- 5
  suppuration, spontaneous consecutive .... iii. E- 5

Senegin—sapotoxin—cyclamin ..... v. B- 45

Senile changes, in bones .... ii. N- 1
  in urine .... ii. N- 2
  nervous and psychic .... ii. N. 2

Senna, exhibition of .... v. A-122

THERAPEUSIS.

SCARLET FEVER, PROPHYLAXIS (*continued*).

borat., zinci oxid., āā ʒiv (15.5 grm.); ol. gaulth., ʒss (2 grm.); vaselin, ℥iv (118.2 grm.)—M. Wash hair thor. with subl. and borax sols. 5. Fresh, clean clothes and leave sick-room, if well enough. 6. Disinfect linen with subl. sol. and boiling; disinf. room with sulph. (sulph. candles) ev. 2d day. 7. Disinfect hair, face, and hands of nurse during attend., and change her garments when sick-room is disinfect. 8. Contin. rules 3 and 4 till desquam. is finished, i. I-11.

DURING ATTACK.

Ol. eucalypti, gtt. j to iv, in emuls. ev. 4 hrs., i. I-13. "Tucker's eucalp. disinfect." with spray-diffuser on floor, evap. on hot shovel; same rubbed all over pat. m. and n. for sevl. days, then ev. night for 10 d.; hair and head also, after 7 d.; bath ev. n. with eucalp. soap and fld., i. I-14. ℞ Liq. hydrarg. bichlor. [1 to 1000], ℥j (31 grm.); pot. iod., ʒss (2 grm.); syr. q. s. ad f℥viij (236 grm.)—M. S.: Tablesp. ev. 1, 2, or 3 hrs. p. r. n., i. I-16. Bichloride merc. int., sulphur oint. ext., v. A-58.

COMPLICATIONS.

CONVULSIONS.

Hot-air baths, dry cups over kid., chloral and bromide (q.s.) per. rect., i. I-15.

EAR, INFLAMMATIONS.

If otit. med. purul., paracentes. of membr. tympan. and daily insuffl. of ac. bor., with calc. sulphide, gr. 1-10 (0.006 grm.), intern., i. I-15; biniodide spray, v. A-59.

NEPHRITIS.

Always exam. urine from disapp. of erupt. for 6 wks., ev. oth. day. *If any album.*, tinct. canthar., gtt. 1-8, ev. 3 hrs. *If nephr. already developed*, give spts. æth. nitros., infus. digital. and spts. juniper co., with potass. bitart.; also fl. ext. jabor., gtt. iiiss to vij ev. 3 hrs. In *mild cases*, hot bath morn. and nt. and blanket sweat. In *severe cases*, hot-air bath, with plenty of cold water, without ice, i. I-14; tinct. strophanthi, gtt. ij to iij, at 5 yrs., repeated, i. B-61.

RHEUMATISM.

Ammon. bromid., gr. iij to v (0.2 to 0.33 grm.), ev. 2 or 3 hrs, i. I-15.

THROAT.

℞ Liq. hyg. bichlor. (1 to 500) ℥viij (236.5 c.cm.); sod. iod., ʒss (1.9 grm,); glycerin, q. s.—M. S.: Used in throat ev. 4 hrs., with stout, short brush. Intern. use biniod. mixt. ev. 2 hrs. *If purging*, ferri perchlor. and pot. chlorat. mixt., with hg. biniod., gr. 1-16 (0.004 grm.) in powd., t. i. d., i. I-15. *Gargle for child æt. 10 yrs.*: ℞ Listerine, ʒij (8 grm.); ext. pinus Canad., ʒss (2 grm.); pot. chlorat., ʒss (2 grm.); glycerin, f ʒv (18 grm.); aquæ, f ℥j (31 grm.)—M. S.: Use as garg. ev. 2 or 3 h. In younger child., unable to garg., give teasp. ev. 3 hrs., i. I-16; biniodide of merc. spray, v. A-59.

AUTHORS QUOTED.

SALT OF SORRELL, TOXIC EFFECTS—Robert Park, v. A-122.

SANDWICH ISLANDS—
  IMPORTED DISEASES IN—ANNUAL 1888, anon., Hoffman, v. E-32.

SANITARY MOVEMENT.
  AFRICA—Anon., Pritchard, McFarlane, v. F-3.
  BELGIUM—Sanitary Bureau of Brussels, Martin, v. F-6.
  ENGLAND—James E. Pollock, v. F-4; Sir E. Chadwick, v. F-5.
  FRANCE—Mme. Gallois, v. F-4; P. de Pietra Santa, Jules Rochard, v. F-6.
  GERMANY—Krieger, v. F-5.
  ITALY—Annanni, Tuisini, Punzo, Caparini, v. F-2; Passaro, Spatuzzi, v. F-3.
  LITERATURE—P. de Pietra Santa, Jules Rochard, v. F-6.
  UNITED STATES—Lindsley, N. S. Davis, anon., v. F-4.

SAPOTOXIN, SENEGIN, CYCLAMIN—Kobert, Pachorukow, v. B-44; Kobert, Tufanow, Attlass, v. B-45.

SCABIES, ANATOMY—Török, iv. A-2.
  TREATMENT—Schwimmer, iv. A-50.

SCARLET FEVER.
  COMPLICATIONS—H. E. Knipp, i. I-11.
  EPIDEMICS OF—Klein, iv. M-5.
  ETIOLOGY—Kretzschmar, i. I-1; C. R. Macdonald, i. I-1; Marie Raskin, i. I-5.
  PROPHYLAXIS—L. Mervin Maus, i. I-11.
  SEQUELÆ—C. H. L. Johnston, Charles West, Kennedy, i. I-13.
  SYMPTOMATOLOGY—Kallas Chunder Bose, i. I-5; Kallas Chunder Bose, K. McLeod, i. I-6; K. K. Reimer, i. I-7; I. M. Neustab, i. I-10.
  TREATMENT—Brendon Curgenven, i. I-13; S. Henry Dessau, i. I-14; C. R. Illingworth, i. I-15; Purdy, N. S. Wood, i. I-16.

SCARLET FEVER AND MEASLES—Louis Starr and W. M. Powell, i. I-1.

SCILLITIN—Montefusco, v. B-45.

SCLEREMA, IN NEWBORN—Baras, Angel Money, Mackenzie, Northrup, ii. L-19.

SCURVY, PATHOLOGY AND TREATMENT—Wm. Koch, Julian Evans, ii. E-25.

SECRETION, PHYSIOLOGY—
  INNERVATION OF GLANDS—Drasch, v. I-35.
  MUCOUS GLANDS, FRESH CELLS—Langley, v. I-34.
  SALIVARY GLANDS—Langley, v. I-34.
  URINARY PIGMENTS—MacMunn, v. I-36.

SEMINAL VESICLES, DISEASES—
  ABSCESS—Mitchell Henry, Lloyd, iii. E-6.
  SUPPURATION, SPONTANEOUS CONSECUTIVE—Jordan Lloyd, Smith, Ralfe, iii. E-5.

SENEGIN—SAPOTOXIN—CYCLAMIN—Kobert, Pachorukow, v. B-44; Attlass, v. B-45.

SENILE CHANGES—
  IN BONES—Humphrey, ii. N-1.
  IN URINE—Massé, Lépine, ii. N-2.
  NERVOUS AND PSYCHIC—Mettenheimer, ii. N-2.

SENNA, EXHIBITION OF—G. H. Dunn, v. A-122; A. W. MacFarlane, v. A-123.

SEPTICÆMIA, ETIOLOGY AND PATHOLOGY—Okintchitz, iii. O-20; Hoffa, Brieger, Bordoni-Uffreduzzi, iii. O-21; Fränkel, Roux and Chamberland, P. Foà and A. Bonome, iii. O-22.
  EMPHYSEMATOUS GANGRENE—Chas. Slater, iii. O-22; Koch and Gaffky, Max Kortüm, iii. O-23.
  METASTATIC STREPTOCOCCHEMIA—Meyer, Cantani, Leube and Litten, Jürgensen, Fehleisen, iii. O-23; Fehleisen, iii. O-24.

GENERAL INDEX.

Septicæmia....iii. O- 20
  etiology and pathology....iii. O- 20
    emphysematous gangrene...iii. O- 22
    metastatic streptococchemia iii. O- 23

Sesquisulphide of hydrogen, therapeutic use....v. A-123

Sexual asthma....i. A-73, 77

Sexual precocity....iv. J- 8

Shock, surgical treatment....v. A-8, 21

Silver, nitrate, in purpura hæmorrhagica....iv. A- 53

Singultus, treatment....v. A-138

Skin, diseases of....iv. A- 1
  carcinoma....iv. A- 31
  diseases of nervous origin....iv. A- 46
  exfoliative affections, losses suffered....iv. A- 45
  nerves of, distribution....iv. A- 47
  sarcoma....iv. A- 43
  scirrhus, primary....iv. A- 31

Skin, diseases, classification....iv. A- 1
  angio-neurotic dermatoses....iv. A- 5
  chorioblastoses....iv. A- 34
  epidermidoses....iv. A- 13
  ideo-neuroses....iv. A- 12
  inflammatory processes, simple iv. A- 1
  neuritic dermatoses....iv. A-6, 46
  stasis dermatoses....iv. A- 9
  syphilodermata....iv. A- 41
  therapeutics....iv. A- 49
    electricity in....v. C- 5
  unclassified affections....iv. A- 44
  xanthoma....iv. A- 42

Skull, hyperostosis cranii....iii. A- 26
  necrosis, acute, temporal bone.iii. A- 27
  sarcoma, multiple subperiosteal....iii. A- 26

Snake-bites (see Poisoned Wounds) iii. M- 12

Snake-poison....v. B- 45
  crotalus durissus....v. B- 45
  vipera ammodytes....v. B- 45
  vipera verus....v. B- 45

THERAPEUSIS.

Sclerema.
  in Newborn.
    Hydrarg. cum crêta, gr. ss (0.03 grm.), m. and n. for 3 mos. Frictions with ol. olivæ; ungt. hydrarg. to abd.; diet, fresh milk and barley-water ii. L-19.
Scurvy.
    Lemon-juice, cress, ferri perchlor., ii. E-26: cold douches, lavements, and frictions, v. D-25.
Seminal Vesicles, Diseases.
  Abscess.
    Perineal incision, iii. E-5.
  Suppuration, Spontaneous Consecutive.
    Perineal puncture and drainage; rectal puncture and drain., iii. E-5.
Shock, Surgical.
    Alcohol, v. A-8; atropine, gr. 1-100 to 1-75 (0.0007 to 0.0008 grm.), hyp., as prophyl., v. A-21.
Singultus.
    Fld. ext. viburnum prunif., drop doses, v. A-138.
Skin, Tumors of.
  Sarcoma on Leg.
    Amputa. of l. at knee-joint, iv. A-43.
  Scirrhus, Primary.
    Excision, iv. A-31.
Skull, Sarcoma, Multiple Subperiosteal.
    Removal, iii. A-26.
Soft Palate, Diseases of.
  Syphilis, with Perforation.
    Plastic op., iv. E-12.
  Tumors.
    Fibro-myxoma.
    Ext. incis. and enuclea., iv. E-11.
Sphenoidal Sinus, Œdema.
    Open nasal fossæ, iv. D-37.
Spina Bifida.
    Aspirate small quant. of fluid and inject. iodo-glycerin, ♏x (0.62 c.cm.), at intervals, v. G-20; plastic op., iii. G-31. Morton's iodo-glycerin sol. injected into sac, iii. F-16. Brainard's sol.: ℞ Iodi, gr. ¼ to v (0.016 to 0.32 grm.); pot. iod., gr. ¾ to xv (0.05 to 0.97 grm.); aq. destil., ℥j (31 grm.)—M. S.: Use ʒss (1.95 grm.) for each injection. (1) Make punct. subcut. in sound skin at side of tum.; (2) draw off no more serum than quant. to be inject.; (3) apply press. during op. to prevent sol. from entering spinal canal; (4) if sympt. of irrit., draw off contents of sac and replace with aq. destil. After op., pat. on side; if much heat, use evap. lot. when tum. bec. flaccid, cover with collodion or support by press. Repeat inject. as oft. as necess., allowing prev. irrita. to subside. Morton's sol.: ℞ Iodi., gr. x (0.65 grm.); pot. iod., gr. xxx (1.95 grm.); glycerin, f℥j (31 grm.)—M., iii. F-46. Morton's rules: Withdraw sm. quant. of fluid; inject ʒss (1.95 grm.) of iodo-glyc. sol.; seal puncture with collod.; apply press.; if sac refills, repeat inject. Excis. of sac, Mayo Robson's meth.: Periost. grafts., iii. F-47. Carl Bayer's op.; Zenenko's op., iii. F-48. Excision of sac, sut. of membr., closure of wnd., cat-gut sut., or buried sutures; Willard's opera.; Hurd's operation, iii. F-50.

AUTHORS QUOTED.

Sesquisulphide of Hydrogen—A. A. da Silva, v. A-123.

Sexual Precocity—Douglas, Jagoe, iv. J-8.

Silver Nitrate, in Purpura Hæmorrhagica—Poulet, iv. A-53.

Skin, Diseases of—Arthur Van Harlingen, iv. A-1.
  Carcinoma—Fernet, Netter, Fernet, iv. A-31.
  Diseases of Nervous Origin—Hutchinson, iv. A-46.
  Exfoliative Affections, Losses Suffered—Quinquaud, iv. A-45; Quinquaud, Vidal, iv. A-46.
  Nerves of, Distribution—Eichhorst, iv. A-47.
  Sarcoma—Handford, Wright, Sattler, Ziegler, Cornil, Rindfleisch, iv. A-43; Ziegler, Robin, Handford. iv. A-44.
  Scirrhus, Primary—Weeks, iv. A-31; Dubreuilh, iv. A-32.

Skull, Hyperostosis Cranii—Putnam, J. Hutchinson, iii. A-27.
  Necrosis, Acute, Temporal Bone—Maudsley, iii. A-27.
  Sarcoma, Multiplex Subperiosteal—Matas, iii. A-27.

Snake-bites—A. Mueller, iii. M-12.

Snake-poison—Feoktistow, Kobert, v. B-45.

Sodium—
  Fluoride, Biological Action—L. I. Tumas, Hewell, Finkler-Prior, v. B-48.
  Sulphate, Salines, Effects—A. Löwy, v. Mering, Zuntz, v. A-123.

Soft Palate—
  Innervation of Muscles—Turner, iv. E-11.
  Syphilis—Ohmann-Dumesnil, McBurney, iv. E-12.
  Tumors—
    Adeno-chondroma—Poncet, iv. E-12.
    Epithelioma—Carey, iv. E-11.
    Fibro-myxoma—McLeod, iv. E-11.

Soja, or Sooja, Therapeutic Uses—Egasse, Koempfer, v. A-123.

Solanum Carolinienѕe, Therapeutic Uses—J. L. Napier, v. A-123.

Somnal, Therapeutic Uses—Radlauer, v. A-123.

Sozoiodol, Therapeutic Uses—Anon., anon., anon., S. Schwarz, Hermann Suchannek, Fritsche, Annual 1889, Nitschmann, v. A-124.

Spain—
  Vital Statistics—General Ybanez, v. E-28.

Sparteine, Therapeutic Uses—Kurloff, Lewaschew, L. Anton Gluzinski, E. T. Bruen, Pawinski, v. A-125.

Spasm, Tonic and Clonic—Hammond, Demarge and Sharkey, Stephan, Charcot, Hughes, ii. C-64; Ross, ii. C-65.

Spermatogenesis—D. Biondi, v. H-2; Sertoli, Merkel, von Ebner, v. H-3.

Sphenoidal Sinus, Œdema—Rolland, iv. D-36.

Spina Bifida, Mortality—Zenenko, R. Demme, Zenner, iii. F-49.
  Pathology and Treatment—Morgagni, Butler-Smythe, J. Morton, iii. F-45; Morton, E. Stanmore Bishop, Carver, Brainard, James Morton, iii. F-46; Brainard, Morton, Mayo Robson, Carl Bayer, iii. F-47; Vladimir N. Zenenko, iii. F-48; Zenenko, R. Demme, Zenner, iii. F-49; Mayo Robson, Zenenko, De Forrest Willard, E. P. Hurd, Marcy, A. E. Hoadley, Charles T. Parkes, Jacques Bondieu, iii. F-50.

GENERAL INDEX.

- Sodium, fluoride, biological action...v. B- 48
  - sulphate—salines, effects.......v. A-123

- Soft palate..............................iv. E- 11
  - innervation of muscles.........iv. E- 11
  - syphilis................................iv. E- 12
  - tumors..................................iv. E- 11
    - adeno-chondroma...............iv. E- 11
    - epithelioma.........................iv. E- 11
    - fibro-myxoma.......................iv. E- 12

- Soja or sooja, therapeutic uses......v. A-123

- Solanum Caroliniense, therapeutic uses..............................v. A-123

- Somnal, therapeutic uses.............v. A-123

- Sosoïodol, therapeutic uses...........v. A-124

- Spain, vital statistics....................v. E- 28

- Sparteine, therapeutic uses..........v. A-125

- Spasm, tonic and clonic..............ii. C- 64

- Spasmodic disorders....................ii. C- 52

- Spermatogenesis..........................v. H- 2

- Spes phthisica...............................i. A- 13

- Sphenoidal sinus, œdema............iv. D- 36

- Spina bifida, mortality................iii. F- 49
  - pathology and treatment.......iii. F- 45

- Spinal cord, diseases...................ii. B- 1
  - ataxia, hereditary (Friedreich's disease)...........................ii. B- 36
  - meningitis, spinal.................ii. B- 15
  - muscular atrophy of ataxics..ii. B- 33
  - myelitis.................................ii. B- 29
    - acute.................................ii. B- 30
    - peri-ependymal..................ii. B- 29
  - paraplegia, ataxic and spastic..ii. B- 14
  - poliomyelitis..........................ii. B- 30
    - acute ascending paralysis (Landry's).......................ii. B- 30
  - reflexes.................................ii. B- 35
  - sclerosis, amyotrophic lateral.ii. B- 31
    - combined............................ii. B- 35
    - posterior spinal (locomotor ataxia)...........................ii. B- 31
  - tabes—suspension treatment..ii. B- 8
  - tumors....................................ii. B- 15
    - cauda equina, compression..ii. B- 29
    - hydatids............................ii. B- 29
    - syphiloma..........................ii. B- 28
    - syringomyelia....................ii. B- 15

THERAPEUSIS.

SPINA BIFIDA (*continued*).
Extirpa. of sac. clos. of membr. and skin by quilted-silk sut., iii. F-51.

SPINAL CORD, DISEASES.
ATAXIA, HEREDITARY.
Suspension, ii. B-14.
MUSCULAR ATROPHY OF ATAXICS.
Faradic brush: cautery to lower extremity. Bloody nerve-stretching, ii. B-34.
MYELITIS,
CHRONIC, DORSO-LUMBAR, SPINAL MENINGO-.
Suspension, ii. B-15.
PARAPLEGIA.
ATAXIC AND SPASTIC.
Suspension, ii. B-14.
SCLEROSIS.
ANTERO-LATERAL DISSEMINATED.
Suspension, ii. B-15; hypnotism, v. A-75.
TABES.
Faradic brush; cautery to lower extremity. Bloody nerve-stretching, ii. B-34; suspension, ii. B-8; acetanilid, v. A-3; chloramide, gr. xv to lx (1 to 4 grm.), v. A-34; hypnotism, v. A-75; exalgine - methylacetanilid, v. A-94; phenacetin, v. A-106; pilocarpine, v. A-109; phenacethydrazin, gr. xlv (3 grm.), daily, v. A-112.

SPLEEN, DISEASES.
HYDATID CYST.
Splenectomy, iii. C-49.
HYPERTROPHY.
Inject. of water, 1 Pravas-syr. hypod., ii. E-16; ligation of branches of splenic artery (failed), ii. E-17. *Malarial:* Splenectomy, iii. C-50.
WOUNDS, LACERATED.
Splenectomy, iii. C-49.

STAMMERING.
Hypnotism, v. A-79.

STERILITY.
Cure *vaginismus;* limit *alcoh. stim.;* treat. of *obesity, endometritis* (use loc. chloride of iron and glycerin, 1 to 3); dilata. of *cervix*, correct *flexions* of ut.; catheteriza. of Fallop. tubes (?); zinc phosphide and belladon.; artif. impregnation; contin. curr. up to 25 milliamp., for *cervical stenosis*, then treat *endometritis;* Outerbridge's instrument for *dysmenorrhœa, flexions*, etc., ii. I-2.

STOMACH, DISEASES.
Cocoa-nut butter, v. A-9.
ATROPHY OF.
Pancreatic infus. (12% to 15%), or pancreatin, v. B-58: use stomach for intestinal digestion, i. C-18.
CARCINOMA.
Pot. iod. [gr. iij to xv (0.20 to 1 grm.)] for the catarrh., i. C-21; pylorectomy, iii. C-18; pyloroplasty, iii. C-20: gastro-enterostomy, Senn's decalc. bone-plates. Abbe's catgut rings, iii. C-25.
FOREIGN BODIES.
Gastrotomy and removal, iii. C-14; gastrot., med. incis. betw. ensif. cart. and umbil., iii. C-17; gastrotomy and enterotomy, iii. C-17.
STENOSIS, CICATRICIAL.
Pylorectomy, iii. C-18; pyloroplasty, iii. C-19; digital divulsion, iii. C-21.
ULCER.
Rest, rigid diet; after a hæmor., evacuate bowels. pot. iod. [gr. iij to xv (0.20

AUTHORS QUOTED.

SPINAL CORD, DISEASES—W. R. Birdsall, ii. B-1.
ATAXIA, HEREDITARY (FRIEDREICH'S DISEASE)—Ladame, Friedreich, Suckling, Hinshelwood, Surmont, Clark, ii. B-36.
MENINGITIS, SPINAL—Voigt, ii. B-15.
MUSCULAR ATROPHY OF ATAXICS—Dejérine, Aran-Duchenne, ii. B-33; Duchenne, Suckling, Dejérine, Theim, Cagney, Casenave de la Roche, Benedikt, Prince, ii. B-34.
MYELITIS, ACUTE—Herter, Stenson, Spronck, Tison, Steiger, Bamberger and Hoffmann, ii. B-30.
PERI-EPENDYMAL—Drummond, ii. B-29.
POLIOMYELITIS — Bramwell, Sachs, Seeligmüller, Hutchinson, Mautner, ii. B-30.
ACUTE ASCENDING PARALYSIS (LANDRY'S) —Bremer, ii. B-30.
REFLEXES — Sharkey, Lubbock, Ziehen, Benedikt, Le Gendre, ii. B-35.
SCLEROSIS—AMYOTROPHIC LATERAL—Dornbluth, ii. B-31.
COMBINED—Glynn, ii. B-35; Du Cane, Whitton, ii. B-36.
POSTERIOR SPINAL—Gray, Neftel, Walton, Gower, ii. B-31; Schwars, Minor, Oppenheim, Germeix, Charcot, Girode, Handford, Barié, Joffroy, ii. B-32; Chataigner, Trousseau, Angel Money, ii. B-33.
TABES. (See Suspension Treatment.)

TUMORS—
CAUDA EQUINA, COMPRESSION—Thorburn, Tooth, ii. B-29.
HYDATIDS—Marwood, ii. B-29.
SYPHILOMA—Osler, ii. B-28.
SYRINGOMYELIA—Schultze, Kahler, Baumler, Roth, Dejérine, ii. B-16; Roth, ii. B-17; Morvan, Gombault and Reboul, Leloir, ii. B-18; Rosenbach, Van Gieson, Delafield, ii. B-19; Cohnheim, Chéron, Grasset, Joffroy and Charcot, Hallopeau, Schmitt and Baraban, Chiari, ii. B-21; Lemoine, Kronthal, Leyden, Cohnheim, Hallopeau, Schule, Eichhorst, Grimm, Westphal, Simon Reisinger, Krauss, Fürstner, Zacher, Roth, Schultze, Langerhaus, Joffroy and Achard, Kronthal, ii. B-22; Kiewlics, Joffroy and Dejérine, ii. B-23; Rumpf, ii. B-24; Nothnagel, Charcot, Blocq, ii. B-25; Joffroy, Remak, Goldscheider, ii. B-26; Charcot, Debove, Upson, Lemoine, Lenhosseks, ii. B-27; Church, Hartley, ii. B-28.

SPINE, SURGERY OF THE—White, Gowers. Robert Abbe, iii. A. 29; Lloyd and Deaver, iii. A-31; Deaver, Herbert W. Allingham, iii. A-32; Dercum and White, iii. A-33; Robert Dawbarn, iii. A-35; J. E. Richardson, iii. A-36; Bullard and Burrell, Bayer, iii. A-37; Wm. Thorburn, iii. A-38.

SPLEEN, THE—
ANATOMY AND PHYSIOLOGY—Malinin, ii. E-14; Maccall, Sir Spencer Wells, Dreschfeld, Krugner, Lapicqué, Bouchard, Griesinger, ii. E-15.
HYDATID CYST—Mâs, iii. C-49.
HYPERTROPHY, MALARIAL — D'Antona, Sokoloff, iii. C-50.
RUPTURE—Dock, Barrallier, ii. E-15.
THERAPEUTICS—Murri and Boari, Nigris, ii. E-16; Feletti, Wyman, Maccall, ii. E-17.
TUMORS—
FIBROID THICKENING OF SPLENIC CAPSULE—A. G. R. Foulerton, ii. E-16.
FLOATING SPLEEN—Gustav Klein, ii. E-16.
HYPERTROPHY—R. Douglas, Bianchi, Dyson, Owen, Médail, Landouzy, ii. E-16.
MUCOUS CYST, DEGENERATED—J. F. Haswell, ii. E-15.
WOUNDS, LACERATED—Weir, iii. C-49.

SPLENECTOMY — Weir, Mâs, iii. C-49; Ceci, D'Antona, Sokoloff, iii. C-50.

SPLENIC VESSELS, ARTERIO-VENOUS ANEURISM—Goodhart, iii. I-15.

SQUILLS, THERAPEUTIC USES—Sirot, v. A-135.

GENERAL INDEX.

- **Spine, surgery of the** ...... iii. A- 29
- **Spleen, the** ...... ii. E- 14
  - anatomy and physiology ...... ii. E- 14
  - hydatid cyst—splenectomy ...... iii. C- 49
  - hypertrophy, malarial—splenectomy ...... iii. C- 50
  - rupture ...... ii. E- 51
  - surgical diseases ...... iii. C- 49
  - therapeutics ...... ii. E- 16
  - tumors ...... ii. E- 15
    - fibroid thickening of splenic capsule ...... ii. E- 16
    - floating spleen ...... ii. E- 16
    - hypertrophy ...... ii. E- 16
    - mucous cyst, degenerated ...... ii. E- 15
  - wounds, lacerated — splenectomy iii. C- 49
- **Splenectomy** ...... iii. C- 49
- **Splenic vessels, arterio-venous aneurism** ...... iii. I- 15
- **Spleno-pneumonia** ...... i. A- 53
- **Squills, therapeutic uses** ...... v. A-135
- **Stammering, treatment** ...... v. A- 79
- **Staphylorraphy** ...... iii. J- 31
- **State medicine** ...... iv. M- 9
  - compulsory notification of disease ...... iv. M- 9
  - quarantine and appliances ...... iv. M- 10
    - disinfecting machinery ...... iv. M- 10
    - "jacket" chamber ...... iv. M- 10
  - sanitation of ships and quarantine ...... iv. M- 10
- **Sterility and treatment** ...... ii. I- 1
- **Sterilization—instruments** ...... iii. Q- 2
  - sponges ...... iii. Q- 3
  - surgeon's hands ...... iii. Q- 13
  - sutures and ligatures ...... iii. Q- 11
- **Sternum, resection of** ...... iii. B- 18
- **Stomach, diseases of, in adult** ...... i. C- 2
  - complicating other diseases ...... i. C- 15
    - cardiac disease ...... i. C- 14
    - diphtheria ...... i. C- 16
    - phthisis ...... i. C- 15
  - diagnostic methods ...... i. C- 5

THERAPEUSIS.

STOMACH, DISEASES, ULCER (*continued*).
to 1 grm.)], for the catarrh., i. C-21; regulate bowels (Hunyadi water), i. C-22; Wiesbaden, v. D-27; chloroform-water, v. A-36.

STOMACH, DISEASES, IN CHILDREN.

DILATATION.
Diminish ferment. Bism., argent. nitr., calomel, resorcin [gr. iij to xxx (0.20 to 2 grm.)], little food and oft. *Avoid* fats and starches. Use milk and fluids, little and oft. Tannin and astring. *for diarrh.* Raw beef and peptones; boiled and peptonized milk. Rudisch's food. Abdom. band. Farad. and galv. curr. Massage. Tinct. nux vom.; strych., gr. 1-120 to 1-60 (0.0005 to 0.001 grm.), t.i.d., i. E-12.

DYSPEPSIA.
Ac. hydrochlor. and pepsin useless; lavage of stomach (water, with or without a wk. alc. sol. thymol); dilute milk or milk-gruel diet; 1 to 3 washings, i. E-10.

GASTRO-ENTERITIS.
Lavage of stomach, i. E-10.

STOMATITIS.

APHTHOSA.
Argent. nitr. loc. to ulcers; *avoid* active measures; no pot. chlorat. or cocaine; use ℞ Sod. salicyl. sol. (20 %), i. E-2; creolin sol. (1 %) loc., v. A-47; saccharin alc. sol. (1 to 50), 1 teasp. to ½ cup water, 5 t. daily, v. A-119.

CATARRHALIS.
Avoid irrit. appl.: clean mouth and nipples after each feed. (pledg. of cott. or ice-water on soft linen); cold food; do not take from breast, i. E-1. If dis. persist, brush mouth with sol. argent. nitr. (½ %), mitig.; stick to fiss. and ulcera., i. E-2; pot. iod. and chlorate, āā gr. v (0.33 grm.). ev. ½ h., v. A-111.

CROUPOSA AND DIPHTHERITICA.
Treat. prim. dis., i. E-5.

GANGRENOSA (NOMA, CANCRUM ORIS.
General treat. of no use: remove gangr. tiss. under anæsthet. galvano-caut. wire or Paquelin caut. pref. to ac. hydrochlor., i. E-5.

MYCOSA (THRUSH, SPRUE, MUGUET).
Prophyl.: Clean mouth, bottles, and nipples. *Treat.:* Remove fungus 4 or 5 t.d. by an alkali (sod. bicarb., 1 teasp. to cup of water, i. E-3. *Avoid* syrups or honey. Calom. or subl. in small dos. well dil. *for intest. disord.* ℞ Lot. nigr., glycerin, āā p aeq.—M. et ft. lotio. S.: Apply to wh. patches with brush (also good in sordes of fever.). Alc. sol. saccharin (2 %), a teasp. to ½ glass of water as wash 5 t. d., i. E-4; resorcin, v. A-116.

SYPHILITICA.
Wk. sol. sod. salicyl. for mouth; arg. nitr. for loc. lesions; subl. sol. (5 % to 12 %) to excoriations. Sol. pot. chlorat.: tannin as astringent, i. E-6.

ULCEROSA.
Sol. pot. chlorat. (3 %) with syr. (½ to 1 teasp. ev. 2 hrs.).

AUTHORS QUOTED.

STATE MEDICINE—

COMPULSORY NOTIFICATION OF DISEASE—Anon., A. Campbell, Munro, iv. M-9.

QUARANTINE AND APPLIANCES—J. B. Hamilton, iv. M-9.

DISINFECTING MACHINERY—C. P. Wilkinson, iv. M-10.

SANITATION OF SHIPS AND QUARANTINE—J. B. Hamilton, iv. M-10.

STERILITY, AND TREATMENT—Treub, de Sinety, Fürbringer, Philbert, Fournel, McKee, ii. I-1; Ashby, P. E. Outerbridge, ii. I-2.

STERILIZATION—

INSTRUMENTS—Edington, Freeman and Olliver, Guermonpres, Ostwalt, Straub, Skutsch, iii. Q-2; Dawbarn, iii. Q-3.

SPONGES—M. M. Benckiser, Perrens, iii. Q-3.

SURGEONS' HANDS—Pauschinger, Fürbringer, Rotter, Landsberg, Packard, Roux and Reynes, iii. Q-13; Prout, Meyer, Liebreich, Kraske, iii. Q-14.

SUTURES AND LIGATURES—Henley, Davis, Trendelenburg, Heyder, Packard, Meyer, iii. Q-11; Braas, Championnière, Benckiser, Schappe, Fowler, iii. Q-12.

STERNUM, RESECTION OF—C. Ellsworth Hewitt, J. L. Roullies, iii. B-18.

STOMACH, DISEASES OF, IN ADULT—

COMPLICATING OTHER DISEASES—Fenwick, i. C-15.

CARDIAC DISEASE—Hüfler, i. C-14.

DIPHTHERIA — Smirnow, Oertl, i. C-16; Jones, i. C-17.

PHTHISIS—Schwalbe, i. C-15; Immermann, Einhorn, Chelmonski, Rosenthal, i. C-16.

DIAGNOSTIC METHODS—Ewalds, Brunner, Huber, Decker, Bourget, Klemperer, i. C-5; Boas, Tschlenoff, Günsburg, i. C-6; von Sohlern, Jürgensen, Günsburg, Moritz, Uffelman, Leo, i. C-7; Sjöqvist, Moritz, Boas, Günsburg, i. C-8; Moritz, Pfungen, Günsburg, i. C-9.

PATHOLOGICAL CONDITIONS.

ATROPHY—Meyer, Auerbach and Meissner, Ewald, i. C-17; Litten, Rosenheim, Reichmann, i. C-18.

PANCREATIN IN—Reichmann, v. B-58.

CARCINOMA—Steven, Clarke, i. C-22; Zahn, Dutoit, Rosenheim, Ewald, Rausier, Klemperer, i. C-23; Ewald, Leichtenstern, i. C-24.

CYSTIC DEGENERATION OF MUCOUS MEMBRANE—Langerhaus, i. C-14.

DILATATION—Pertik, Leube, Meyer, i. C-18; d'Astros, Klemperer, Litten, Paliard, i. C-19.

GASTRITIS, DIPTHERITIC—Smirnow, Oertl, i. C-16; Jones, i. C-17.

GASTRITIS, PHLEGMONOUS—Smith, i. C-14.

NEUROSES—Boas, Leyden, Garland, i. C-12; Leo, Ord, Decker, i. C-13.

RUPTURE—Thiéry, i. C-14.

ULCER—Fournier, i. C-9; von Sohlern, Talma, Peabody, i. C-20; Musser, Ord, i. C-21; Cornils, Byron Bramwell, Jaworski, Mueller, Fage, Meyer, i. C-22.

PHYSIOLOGY—Quincke, i. C-2; Griffini and Vassali, Pavloff and Shümova-Simanovskaïa, Pick, Riegel, Girard, i. C-3; Wolf, Eklund, Sanberg, Gans, Katz, i. C-4.

THERAPEUTIC METHODS — Wettendorfer, Kevin, Decker, Fournier, i. C-9; Ziemssen, Pulido, Ortega, Roberts, Munk, i. C-10; Ewald, Bourget, Hare, Richter, Altdorfer, i. C-11.

STOMACH, DISEASES OF, IN CHILDREN.

DILATATION, ETIOLOGY AND TREATMENT—Jacobi, i. E-12.

STOMACH, DIGESTION—Leo, i. E-8.

STOMACH-WASHING, LAVAGE—Leo, i. E-9; Seibert, i. E-10; Faucher, Seibert, Jacobi, i. E-11.

GENERAL INDEX.

Stomach, diseases of, in adult (*continued*).
pathological conditions............i. C- 14
atrophy..............................i. C- 17
pancreatine in...................v. B- 58
carcinoma..........................i. C- 22
cystic degeneration of mucous membrane.................i. C- 14
dilatation ....i. C- 18
gastritis, diphtheritic..........i. C- 16
gastritis, phlegmonous.........i. C- 14
neuroses............................i. C- 12
rupture ....i. C- 14
ulcer..................................i. C- 20
physiology.............................i. C- 2
therapeutic methods...............i. C- 9

Stomach, diseases of, in children...i- E- 8
dilatation, etiology, and treatment..............................i. E- 12
stomach digestion...................i. E- 8
stomach-washing, lavage........i. E- 9

Stomach, dyspepsia.......................i. A- 15
digestion tests........................i. A- 15
motor power...........................i. A- 15
test-meal, Klemperer's............i. A- 15
Sohlern's...........................i. C- 7

Stomach, surgical diseases—carcinoma, pyloric.................iii. C- 18
gastro-enterostomy............iii. C- 26
pylorectomy ....iii. C- 18
pyloroplasty ....iii. C- 20
foreign bodies.......................iii. C- 14
gastrotomy.........................iii. C- 14
gastrotomy and enterotomy.iii.C- 17
stenosis, cicatricial...............iii. C- 18
digital divulsion................iii. C- 21
pylorectomy......................iii. C- 18
pyloroplasty ....iii. C- 19

Stomach and intestines, surgery of iii. C- 11

Stomach, mouth, pancreas, and liver, diseases ....i. C- 1

Stomatitis, classification................i. E- 1
aphthosa ....i. E- 2
etiology and symptomatology i. E- 2
treatment...................... .....i. E- 2
catarrhalis...............................i. E- 1
etiology and symptomatology i. E- 1
treatment ....i. E- 1
crouposa and diphtheritica......i. E- 5
etiology and treatment.........i. E- 5

THERAPEUSIS.

Stomatitis, Ulcerosa (*continued*).
Sol. argent. nitr., loc., if necess., i. E-4.

Stramonium, Toxic Effects.
Caffeine, morphine, black coffee, and camphor, v. A-125.

Subdiaphragmatic Abscess.
Free incis. and drainage, iii. C-9.

Subphrenic Hydatid Cyst.
Laparotomy, irriga. with lukewarm sol. of salicyl. and boric ac.; no drain. (imposs.), iii. C-8.

Suppuration Abscess.
Free incision, drainage, irrigation sub. sol. (1 to 1000). Insts. sterilis. and parts washed with ℞ Glycerin, ac. carbol., āā gr. ccclxxv (25 grm.); aq. bull., 1 quart (1 litre)—M. Cov. abscess with sheet-rubber and band.; after 24 hrs., use sol. again; replace or remove drain. tube, iii. K-8. ℞ Silico-fluor. of sod., gr. vij (0.45 grm.); aq., ℥j (30 grm.)—M. S.: To wash out abscess-cav. *Abortive, in ear*: Sat. sol. ac. bor. in alcohol absol., after incis.; elsewhere sol. ac. carbol. (3%) injec. subcut., iii K-9. Galvanization, v. C-7; sol. merc. biniod. (1 to 4000), v. A-60.

Sycosis.
Hydroxylamin sol. in alcoh. or glyc. (1 to 500), appl. extern., iv. A-52.

Syphilis.
Early Virulent.
Specific and reconstructive treat., i. M-37.
Fever of, Intermittent Form.
Mercurials, i. M-40.
Hereditary.
Late Lesions.
Pot. iod., gr. xc to clx (6 to 10.66 grm.), i. M-35.
Prophylaxis.
Prolonged treatment. Instruct as to danger to children; forbid marriage until clear evidence that dis. is so atten. that no longer dangerous as husband or father, i. M-31.
Late Phenomena.
Merc. inunc. and pot. iod., small doses, i. M-37; phytolacca-root in skin-lesions, v. A-109.
Leprosy and.
Merc. frict., pot. iod., Zittmann's decoct., i. M-38.
Prophylaxis.
Regulation of prostitutes; prostitution under government control; compuls. exam. of all prostitutes. If dis., to be sent to special hosp. for treat. During early secondary period, most severe restrict. to be observed. Soldiers and sailors in gov. control to have periodic exam.; early and prolong. treat. in hosp.; kept under supervis. after appar. cure. Exam. of factory-hands and wet-nurses; State regula. of vaccina. and circumcis: establ. of large number of hosp. for syph.; internat. laws regarding syph. and prostitution, i. M-1.
Syphilitic Physicians.
Syphilide on hand to debar from practice, unless isolated in some safe mechan.

AUTHORS QUOTED.

Stomach, Surgical Diseases—
Carcinoma, Pyloric—
Gastro-enterostomy—Senn, Wölfler, Abbe, Matas, iii. C-25; Clarke, Kammerer, iii. C-26: Briddon, Shively, Curtis, Page, Wölfler, Senn, iii. C-27.
Pylorectomy — Parke, Sir William Stokes, Southam, McArdle, Buchanan, Annual 1889, iii. C-18.
Pyloroplasty — Lauenstein, Angerer, Ziemssen, iii. C-20; Lauenstein, iii. C-21.

Foreign Bodies—Hashimoto, iii. C-14; Le Dentu, iii. C-15; Le Dentu, iii. C-15; Terrier, Radestock, iii. C-17.

Stenosis, Cicatricial—
Digital Divulsion—Loreta, iii. C-21; Frederick Treves, Hagyard, iii. C-22; Loreta, Barton, Kinnicutt and Bull, iii. C-23: Loreta, Bull, Senn, Abbe, Heinecke, iii. C-24.
Pylorectomy—F. Ortmann, Mikulicz, iii. C-18; Rydyger, iii. C-19.
Pyloroplasty—Ortmann, Mikulicz, iii. C-19: Heinecke, Bardeleben, Mikulicz, Lauenstein, iii. C-20.

Stomach, Mouth, Pancreas, and Liver, Diseases—Frederick G. Shattuck, G. G. Sears, Algernon Coolidge, Jr., i. C-1.

Stomatitis, Classification—Forchheimer, i. E-1.
Aphthosa, Treatment—Hertz, i. E-2.
Mycosa—
Etiology and Pathology—Reess, i. E-2.
Prophylaxis and Treatment — Ord, Fourcier, i. E-4.

Stramonium, Toxic Effects—Pedicini, v. A-125.

Strongylus—A. Silvestrini, Beck, i. F-19.

Strophanthus—Strophanthine—
Local Anæsthesia—Steinach, iii. R-20.
Therapeutic Uses—Ed. Egasse, v. A-125; Annual 1889, R. Demme, Steinach, Troquart, Moreau, Pope, v. A-126: British Med. Journ., Hermann Haas, Fraser, Hare, Dujardin-Beaumetz, Germain Sée, v. A-127; Bucquoy, Catillon, J. Y. Dale, Dujardin-Beaumetz, Laborde, Arnaud, v. A-128.

Strychnine—
Poisoning by, in Labor—Avrard, ii. J-22.

Subdiaphragmatic Abscess—A. L. Mason, iii. C-9.

Subphrenic.Hydatid Cyst—Karl Lobker, iii. C-8.

Sugar, Tin in—T. L. Phipson, v. F-21.
Sugar-Dressing for Wounds—Dannheisser, iii. Q-10.

Sulphonal—Smith, Kast, Wm. F. Shick, v. B-50; Setschenow, v. B-51.
Therapeutics and Toxicology—J. W. Irwin, A. G. Browning, C. W. Kavanaugh, W. R. Watson, C. H. Shivers, French Mullen, I. S. Titus, H. Macnaughton Jones, v. A-128; Matthes, René Verhoogen, Leube, R. E. Power, Kisch, Joachim, G. W. Rachel, Zerner, Böttrich, Samuel Garnier, F. Fisher, J. P. Crozer Griffith, v. A-129: A. Mairet, C. M. Rexford, A. Mairet, Theo. L. Hatch, Ed. Egasse, Doolittle, Funaioli and Raimondi, Sachs, Ott, Hunter McGuire, Ruscheweyh, v. A-130; Elon N. Garpenter, Percy Smith Rabbas, A. Cramer, H. W. Boone, E. H. Kisch, E. B. Landis, Algeri, C. Paul, Engelmann, Kronfeld and Löwenthal, Conolly Norman, William H. Flint, Matthes, v. A-131; Julius Schwalbe, J. Mason, Charles

GENERAL INDEX.

Stomatitis, classification (*continued*).
gangrenosa (noma, cancrum oris) .....i. E- 5
etiology and symptomatology i. E- 5
treatment.....i. E- 5
mycosa (thrush, sprue, muguet) .....i. E- 2
etiology and pathology.....i. E- 2
prophylaxis and treatment ..i. E- 3
syphilitica.....i. E- 5
etiology and pathology.....i. E- 5
treatment.....i. E- 6
ulcerosa—s. fetid, putrid, or phlegmonous.....i. E- 4
pathology and treatment.....i. E- 4

Stramonium, toxic effects.....v. A-125

Strongylus.....i. F- 19

Streptococchemia, metastatic.....iii. O- 23

Strophanthus—strophanthine.....v. A-125
local anæsthesia.....iii. P- 20
therapeutic uses.....v. A-125

Strychnine, poisoning by, in labor.ii. J- 22

Subdiaphragmatic abscess.....iii. C- 9

Subphrenic hydatid cyst.....iii. C- 8

Sugar, tin in.....v. F- 21

Sugar-dressing for wounds.....iii. Q- 10

Sulphonal.....v. B- 58
therapeutics and toxicology....v. A-120

Sulphur, therapeutic uses.....v. A-134

Sulphuric acid.....v. B- 51

Sulphurous-acid gas, in favus.....iv. A- 54

Sunstroke (see Thermic fever).....i. H- 80

Suppuration—abscess.....iii. K- 6
clinical.....iii. K- 7
etiology.....iii. K- 6
treatment.....iii. K- 7

Surgery of the brain, spinal cord, and nerves.....iii. A- 1

Surgical diseases.....iii. O- 1

dressings and antiseptics.....iii. Q- 1

THERAPEUSIS.

SYPHILIS, PROPHYLAXIS (*continued*).
way, i. M-1. Care of fingers; use of protectives and disinfect., i. M-2.

SYPHILODERMATA.
Careful inspect. of vagina, preceded by irriga., i. M-39.
OF VULVA.
Constit. remed., careful cleansing, and daily applica. of arg. nitr., if ulcera., dusting with iodof. or iodol, or 1 pt. hydronaphthol to 50 or 100 of fullers' earth, i. M-39.

TERTIARY.
Mercurials as prophylactic, i. M-27.
TRANSMISSION.
Cleanliness; avoid kissing, eating, or drinking out of contam. vessels, i. M-3.
TREATMENT, SPECIFIC.
GENERAL THERAPEUTICS.
Iodol for tertiary ulcera. and chancroids, also internally [gr. ¼ to ij (0.015 to 0.13 grm.)]. Hydrarg. salicyl. [gr. 1-16 to 1-8 (0.004 to 0.008 grm.)]. *For mouth and pharynx*, subl. inject. [gr. 1-60 to 1-30 (0.001 to 0.002 grm.)], no loc. treat.; avoid irrita. of M. M. of mouth; 3 to 5 inject. in the back from inf. angle of scap. to lumbar reg., i. M-24. Calomel, gr. iss (0.1 grm.), inject. *Prolonged treatment* for 4 or more yrs., with intermiss., without regard to activ. or latency of dis.; alternately energetic and mild, begun only after diagn. is assured. *Chancres:* Excision: begin treat. when erup. app., except. in dangerous local. of prim. infect. Sublimate baths; after 1 to 1½ hrs. in bath, wrap pat. for 1 to 2 hrs. in sheet which has been in bath, dry cov. over wet sheet. Quinine with merc. inunct., quin., gr. xv. to xxij (1 to 1.50 grm.), daily. Hydrarg. biniod. [gr. 1-32 to ¼ (0.002 to 0.015 grm.), alone or with pot. iod., i. M-25. Ichthyol, gr. viiss to xxx (0.05 to 2 grm.), daily; also extern. in aq. or ether. sol. (5% pure); combined with ac. salicyl., or with merc. in deep inject. Chrome-water. Gray pills, int. Empl. hydrarg. olein. applica. for children. Inunct. and deep subcutan. inject. of gray oil of Lang (hydrarg., 6 p.; lanolin, 3 p.; ol. olivæ, 4 p.—M.), i. M-26. Calomel inject. of Lang (calomel, 3 p.; lanolin, 2 p.; ol.-oil, 3 to 6 p.)—M. *Lassar's meth.:* Excis. of chancre; contin. treat.; sol. cocaine (5%) inject. used in excision. Treat. begun immed. after op. Hypod. inject. of sublimate, with pot. iod. by mouth. Systematic massage of glands and muscles with sap. vir.; warm bath ev. d. with 3% to 4% of salt to bath, i. M-27. Hydrarg. salicyl.; int., i. M-13, 14; full doses of ergot for *night-sweats* of S., i. M-21; mercurials, v. A-56.
HYPODERMIC MEDICATION.
Leloir and Tavernier's meth.: 1. Cal. and vasel. (1 to 12). 2. Yel. oxide and vasel. (1 to 12). 3. Gray oil: Hydrarg., 4 p.; eth. tinct. benzoin, 1 p.; vasel., 8 p.—M.

AUTHORS QUOTED.

SULPHONAL, THERAPEUTICS AND TOXICOLOGY (*continued*).
Macdowell, Geo. C. Kingsbury, C. W. Hogarth, A. Mosse, Mosee, Knoblauch, C. M. Hay, Montard-Martin, v. A-132; William F. Shick, Grover Burnett, Jos. M. Loebl, Huchard, Paul Rehm, anon., Bornemann, R. R. Petitt, v. A-133; Schotten, v. A-134.

SULPHUR, THERAPEUTIC USES—Luton, E. R. Squibb, Shoemaker, Alfred B. Garrod, v. A-134; J. Emerson Reynolds, v. A-135.

SULPHURIC ACID—Sher, v. B-51.

SULPHUROUS-ACID GAS—
IN FAVUS—Schuster, iv. A-54.

SUPPURATION ABSCESS—
CLINICAL—Helweg, Duhamel, Verneuil and Clado, iii. K-8.
ETIOLOGY—Grawitz, iii. K-6; Steinhaus, Atkinson, Rosenbach, Ribbert, Metschnikoff, Lemière, iii. K-7.
TREATMENT—Lucas Championnière, iii. K-8; Leu Shimwell, Löwenberg, Gerster, iii. K-9.

SURGERY OF THE BRAIN, SPINAL CORD, AND NERVES—John H. Packard and Frederick A. Packard, iii. A-1.

SURGICAL DISEASES—Louis McLane-Tiffany, iii. O-1.
DRESSINGS AND ANTISEPTICS—John H. Packard, iii. Q-1.

SUSPENSION TREATMENT IN NERVOUS DISEASES—
ACTION, THEORIES OF—Motschutkowski, Charcot, Bernhardt, Althaus, ii. B-13; Motschutkowski, Hammond, Dujardin-Beaumetz, Land, ii. B-14.
APPARATUS AND METHOD—Gilles de la Tourette, Charcot, Sayre, ii. B-6; Gilles de la Tourette, Althaus, Hammond, Mitchell, de Watteville, Shaw, Ladame, Land, Kintoch, Pochery, Dujardin-Beaumetz, Maury, ii. B-7; Binswanger, Kapeller, ii. B-8.
DURATION—Motschutkowski, Charcot, Mitchell, ii. B-8.
FREQUENCY—Motschutkowski, Wartzfelder, ii. B-8.
HISTORY OF METHOD—J. K. Mitchell, S. Weir Mitchell, J. von Motschutkowski, F. Raymond, Charcot, Sayre, ii. B-2; Sayre, Motschutkowski, ii. B-3; Adamkiewicz, ii. B-4; Motschutkowski, Raymond, Marshall, Charcot, Gilles de la Tourette, Saundby, Lespinasse, Vergely and Picot, Eulenberg and Mendel, de Watteville, Dana, S. Weir Mitchell, Althaus, W. J. Morton, Abadie and Desnos, Gorecki, Booth, Bernhardt, W. A. Hammond, Sinkler, Land, Erb, Stewart, Simpson, Wartzfelder, Blocq, Ladame, Skinner, Shaw, Teissier, Dujardin-Beaumetz, Tiberghein, Mouisset, Kellogg, de Renzi, Kintoch, Schilling, Hoffmann, Stallard, Abrams, Short-Saundby, Tompkins, Renaut, John R. Lunn, Churton, Haushalter and Adam, Garry, Russell and Taylor, Clark, Raoult, Dujardin-Beaumetz, Regnier, Riggs, Edinger, Charcot, Althaus, Dujardin-Beaumetz, ii. B-5; Erb, Short-Saundby, Russell and Taylor, Churton, Motschutkowski, Charcot, Eulenberg and Mendel, Dana, Tiberghien, Bernhardt, Marini, Dujardin-Beaumetz, Althaus, ii. B-6.
INJURIOUS AND DISAGREEABLE EFFECTS—Charcot, Motschutkowski, Hammond, ii. B-11; Gorecki, anon., Vincent, Erb, Tompkins, Hammond, Skinner, Mouisset, Tessier, Dana, Hicky, Charcot, Dejérine, ii. B-12; Bianchette, Marini, Clark, Bernhardt, Blocq, ii. B-13.

GENERAL INDEX.

Suspension treatment in nervous diseases......ii. B- 1
- action, theories of......ii. B- 13
- apparatus and method......ii. B- 6
- duration......ii. B- 8
- frequency......ii. B- 8
- history of method......ii. B- 2
- injurious and disagreeable effects......ii. B- 11
- results, in tabes......ii. B- 8
  - in other diseases......ii. B- 14

Sycosis......iv. A- 5
- bacillogena......iv. A- 5
- treatment......iv. A- 52

Synovitis, acute and chronic......iii. G- 23

Syphilis......i. M- 1
- arteritis simulating Raynaud's disease......i. M- 38
- cancer from......i. M- 38
- diagnosis......i. M- 3
- early virulent......i. M- 46
- fever of (*typhose syphilitique*)......i. M- 39
- hereditary......i. M- 28
  - conceptional form......i. M- 32
  - influence of parent......i. M-29, 34
  - late lesions......i. M- 35
  - manifestations......i. M-28, 33
  - mortality......i. M-30, 36
  - period of inheritance......i. M- 30
  - polymorphous syphilides......i. M- 31
  - prophylaxis......i. M- 31
  - pterygoid plaques......i. M- 32
- late phenomena (tumors of muscles)......i. M- 37
- leprosy and......i. M- 37
- prophylaxis......i. M- 1
- syphilodermata......i. M- 39
- tertiary......i. M- 27
  - contagion during......i. M-28, 34
  - relative frequency......i. M- 27

THERAPEUSIS.

Syphilis, Treatment, Hypodermic Medication (*continued*).

Retro-trochanteric region. ½ syr. (Pravaz) for first 2, ⅓ for last formula, 8 to 9 d. interval. Not to be used in cerebral, spinal, or visceral S., or in S. of pregn., or in infantile S., i. M-11. *Tschernoguboff's meth.:* Yel. oxide, gr. ij (0.13 grm.) for ad., gr. j (0.07 grm.) for child of 12 to 14 yrs., hyp., ev. 10 or 11 d. in back. In S. ulcers and gummata, pot. iod. Pregn. not a contra-ind. Avoid in adv. anæm., asthenia, alcohol., chr. infl. of parenchym. organs, dental caries, i. M-12. *Tshiskiakoff's meth.:* Emuls. of subl., cyanide or salicylate, with vaselin-oil, in doses of gr. j (0.065 grm.), ev. wk., i. M-13. *Szadek's meth.:* ℞ Hydrarg. salicyl., gr. iij (0.2 grm.); mucil. acac., ♏v (0.3 grm.); aq. dest., ℥ij (60 grm.)—M. S.: Ev. 2 to 3 d. for 6 to 12 times. *Jadassohn and Zeising's meth.:* Salicylate in pure liq. paraffin (10%), intra-muscular inject., i. M-14. *Schreus's meth.:* Salicylate, gr. iss (0.1 grm.), in suspension in paraffin (1 to 10); wash pt. with warm carbol. sol.; wash syr. and needle with warm carb. sol. bef. and aft. each inject.; slightly warm mercur. sol.; fine, sharp needle into buttock-muscles, altern. from r. to l. side; friction over pt. of inject. for few seconds after removal of needle; vaseline on needle and wire. ℞ Subl., gr. iij (0.2 grm.); sod. chlor., ʒss (2 grm.); aq. dest., ʒx (40 grm.)—M. S.: Inject 10 to 20 min. (0.62 to 1.23 grm.); give also tonic at same time, i. M-15. *Sukhoff's meth.:* Cinnabar (bisulphide). *Petersen's meth.:* Salicylate, gr. j to iss (0.065 to 0.097 grm.), weekly. *Behrmann's meth.:* Aq. sol. subl., i. M-17. *Stukovenkoff's meth.:* Succinate and oleate; (*Marenitch's* appliance for removing mercurial concretions about teeth.) *Runult's meth.:* Mercur. and oil (23 to 100). *Krecke's meth.:* Cal., gr. iss (0.10 grm.) in glycerin, mucil., vasel., or com. salt, ev. 15 d.; yel. oxide, phenate, salicylate, bichloride, i. M-18. *Welander's meth.:* Acetate of thymol-mercury in liq. paraffin (1 to 10), ev. 4 d. *Hebra's meth.:* Innunctions; also, bichloride (1%) in 6% salt sol. hyp. in gluteal muscles, daily. Albuminate and peptonate; Liebreich's formanide; glycocol of mercury; cyanuret; calomel (4 to 6 inject), ev. wk.; *Lang's gray oil:* Merc., 3 p.; lanolin, 3 p.; ol. olivæ, 4 p.—M. *Watraszewski's meth.:* ℞ Yel. oxide., 4 p.; acaciæ, 1 p.; aq., 120 p.—M., i. M-21. *Bamberger's meth.:* Peptonate: dissolve peptone, gr. xv (1 grm.) in water, add 5% sol. subl. ʒv (20 grm.); dissolve precip. by 20% sol. sod. chlor.; add aq. destil. to make 1% sol. of sublimate; dose, ♏xv (1 grm.). *Klotz's meth.:* Yel.

AUTHORS QUOTED.

Suspension Treatment in Nervous Diseases (*continued*).
- Results, in Tabes—Motschutkowski, Charcot, Romberg, Eulenberg and Mendel, ii. B-8; Dana, Althaus, Bernhardt, de Renzi, ii. B-9; Erb, Stewart, Russell and Taylor, Clark, ii. B-10; Darier, Ladame, Motschutkowski, Charcot, Romberg, Renaut, Althaus, ii. B-11.
  - in Other Diseases—Motschutkowski, Charcot, Eulenberg and Mendel, Dana, Abrams, Eulenberg and Mendel, Tiberghien, Abrams, Shaw, Charcot, Stewart, Adam and Haushalter, Abrams, Charcot, Tiberghien, Stewart, ii. B-14; Eulenberg and Mendel, Adam and Haushalter, Hammond, Tiberghien, Stewart, Abrams, Mitchell, de Renzi, Adam and Haushalter, Eulenberg and Mendel, Abrams, Adam and Haushalter, Régis and Friese, Birdsall, ii. B-15.

Sycosis—A. Ducrey, Tomasoli, iv. A-5.
- Treatment—Eichhoff, iv. A-52.

Syphilis—J. William White, i. M-1.
- Arteritis Simulating Raynaud's Disease—Klotz, Hutchinson, i. M-38.
- Cancer from—Ed. Lang, i. M-38.
- Diagnosis—Vajada, H. C. Wood, J. William White, i. M-4; Jullien, J. William White, H. C. Wood, i. M-5; James Stewart, J. Nevins Hyde, F. N. Otis, J. P. Bryson, J. B. Chapin, E. N. Brush, R. W. Taylor, F. R. Sturgis, McCall Anderson, E. L. Keyes, Edward Park, Wm. Osler, i. M-6.
- Early Virulent—Baudouin, i. M-36.
- Fever of—Fournier, i. M-39.
- Hereditary—
  - Conceptional Form—Fournier, Diday, Caspary and Neumann, i. M-32; Colles-Baumes, Morel-Lavallée, Fournier, Colles, Baumes, Diday, i. M-33.
  - Influence of Parent—Fournier, i. M-29; Neumann, i. M-34; Boeck and Dewere, Neumann, Friedinger, i. M-35.
  - Late Lesions—Fortunet, Bonnaud, i. M-35.
  - Manifestations—Fournier, i. M-28; Barthélémy, Sevestre, i. M-33.
  - Mortality—Fournier, i. M-30; Fournier, i. M-31; Le Pileur, i. M-36.
  - Period of Inheritance—Fournier, i. M-30.
  - Polymorphous Syphilides—Jacquet, i. M-31.
  - Pterygoid Plaques—Sevestre, i. M-32.
- Late Phenomena—Bramann, Köbner, i. M-27.
- Leprosy and—Kaposi, i. M-37; Neumann, i. M-38.
- Prophylaxis—Neumann, Neisser, i. M-1.
- Syphilodermata—M. Balzer, J. N. Hyde, i. M-39.
- Tertiary—
  - Contagion—Landouzy, Ricord, Fournier, Hardy, i. M-28; Landouzy, Hardy, Fournier, Arnozan, Balzer, i. M-34.
  - Relative Frequency—Neumann, Drysdale, Maurice, i. M-27; Fournier, i. M-28.
- Transmission—Lancereaux, Adrian Stourme, E. Feibes, Lemaire, Edwin C. Burnet, i. M-2; William Anderson, F. B. Greenough, Barker, Pospelow, i. M-3; Ignaz Neudörfer, i. M-4; Edwin E. King, i. M-34.
- Treatment, Specific—
  - General Therapeutics—W. R. Gowers, Karl Szadek, I. Hoffmann, S. Rosolimus, I. W. Runeberg, i. M-24; I. Jaln, Odmansso, A. Neisser, Edm. Lesser, I. Ehrmann, Denenicki, Gustave Mahé, i. M-25; Gibello, Peroni, Glünts, Edouard Lang, Lustgarten, i. M-26; Oscar Lassar, Senator, i. M-27.
  - Hypodermic Medication—Leloir and A. Tavernier, i. M-11; A. I. Tschernoguboff, Witz, Smirnoff, i. M-12; Scarenzio, Tohiskiakoff, Silva de Aranjo, i. M-13; Szadek, Epstein, Arthur Plumert, Jadassohn and Zeising, Neisser, Neumann, i. M-14; Theo. Schrens, Silva de Aranjo, i. M-15; Szadek, Aranjo, Sukhoff, i. M-16; Oscar V. Petersen, Behrmann, i. M-17; M. I.

GENERAL INDEX.

Syphilis (*continued*).
  transmission ....i. M-2, 34
  treatment, specific... ....i. M- 6
    general therapeutics...........i. M- 24
    hypodermic medication........i. M- 11
    local treatment ....i. M-3, 9
    thermic medication.............i. M- 22
    time for beginning.............i. M- 6
  tuberculosis and.....................i. M- 39
  vaccino-syphilis.....................i. M- 36

Syphilodermata..........................iv. A- 41
  late erythematous................iv. A- 41
  neuro-syphilides and neuro-leprides........................iv. A- 41

Syringomyelia ....ii. B- 15
Tabes—suspension treatment.......ii. B- 8

Tachycardia, paroxysmal, treatment...............................i. B- 37

Tænia, in adult and children.........i. F- 7

  remedies ....i. F- 8

Tansy, toxic effects.......................v. A-135

Tattoo-marks, treatment.............iv. A- 54

Tatuleth—crosophoria tinctoria, toxic effects.............................v. A-135

Teeth, reflex neuroses.................iii. J- 11
  and ear, relation between diseases of.........................iv. C- 40

THERAPEUSIS.

SYPHILIS, LOCAL TREATMENT (*continued*).
oxide in water, oil or vaselin (1 to 30), i. M-22; mercurials, v. A-57, 61 to 63.
LOCAL TREATMENT.
Urethral lesions, iodof., immerse penis in tepid water. i. M-3: local antisep., i. M-9; acid nitr. of merc. and pulv. sublimate *for mucous S.* and *recent chancres*. Subl. sol. (1-500 to 1-2000) contin. app. on compresses, cov. with oiled silk, for *ulceration*. Benzoate (43% merc.) in emuls. (10%) for inject., gr. iss to iiss (0.10 to 0.15 grm.); int. in pills, gr. 1-10 to ⅓ (0.006 to 0.021 grm.), 2 t. d., i. M-10. *Vulva S.*: Cleansing. arg. nitr. daily; if ulc., dust with iodof. or iodol, or hydronaph., 1 p. to 50 or 100 p. of fullers' earth, i. M-39.
THERMIC MEDICATION.
Half-hour hot baths freq. repeat.; warm tea, pilocarp. hyp., vapor-baths. i. M-19. Half-hour hot bath (37° R.—115° F.) 2 t. d. to limb, hot compr. on pts. in intervals; if bath impract., hot-water bag (35° to 40° R.—111° to 122° F.) for 1 hr., 2 t. d., with merc. with or without iodides: avoid heat in very weak pat. and in moist papules, where calomel is best; general hot baths (33° to 34° R.—106° to 109° F.) for 10 to 15 min., fol. by packing in wool blankets, i. M-23.

TACHYCARDIA, PAROXYSMAL.
If anæmia, tonics, hygiene, food; remove digest. disturb., *avoid* overexertion, tea, coffee, tobacco; during paroxysms rest in bed, avoid exertion: digitalis: *compress pneumogastric in neck*, at level of thyroid cartil., avoiding artery; deep inspirations, hold breath after full inspira.; mod. inhala. of chlorof. and large sinap. over præcord.; morph. hypod., i. B-39; if pulm. stasis, leeches over heart, i. B-40.

TÆNIA.
IN ADULT.
Sal. Epsom, ℥j (31.0 grm.) at bed-time; oleo-resin. male fern ʒj (4 grm.), caps., on rising, with ether, ʒj (4 grm.), in simple elix., at same time; 2 hrs. later, ol. ricin., ℥j (31.0 grm.) with ol. terebinth., gtt. xxx; no food till oil ceases to operate; pass worm into bucket of warm water, i. F-1, 13; eth. ext. male fern or kooso with antipyrin; syr. of ether (1 teasp.), or tinct. opii, gtt. viij to x, to combat peristalsis, i. F-9; areca-nut in powd., ʒj to iss (4.0 to 6.0 grm.), fol. by active purge, and preced. by milk diet and by purg. or enema on prev. evng. Stupefy or kill worm and follow quickly by a purg., i. F-10; Burggraeve-Chanteaud granules of koussin; koussin (Merck or Bedall) in 2 or 3 doses, in caps., tablets or pills, gr. xlv (3.0 grm.), at half-hour intervals. ℞ Tinct. kamalæ (18 to 38), ʒj (4 grm.); aq. aur. flor., ʒiv (16 grm.)—M. Tanret's pelletierine (pelletierine tannate), ♏viij to xxv (0.5 to 1.5 grm.); chloroform, gr. xxx

AUTHORS QUOTED.

SYPHILIS, TREATMENT, HYPODERMIC MEDICATION (*continued*).
Stukovenkoff, Behrmann, S. T. Marenitch, Raoult, Luton and Prochoscow, Kreeke, Kopp, Scarenzio, i. M-18; Welander, Radestock, H. von Hebra, Bockhart, Lewin, i. M-19; Bockhart, Bamberger, Liebreich, Wolff and Nega, i. M-20; von Lang, Neisser and Balzer, Watraszewski, Lesser, Kaposi, Hatherly, i. M-21; Wilson, Bamberger, Klotz, Taylor, Morrow, Zeisler, Sherwell, Bronson, Heitzmann, i. M-22.

LOCAL TREATMENT—F. B. Greenough, i. M-3; Hallopeau, i. M-9; Stukowenkow, i. M-10.

THERMIC MEDICATION — Kalashnikoff, i. M-22, Usass, Fisher, Tarnovsky, i. M-23.

TIME FOR BEGINNING—McCall Anderson, i. M-6; Langlebert, F. D. Bird, i. M-7; Karl Ullmann, J. Wm. White, i. M-8; Verneuil, i. M-9.

TUBERCULOSIS AND—Weinlechner, i. M-38.

VACCINO-SYPHILIS — Hervieux, Fournier, Cory, i. M-36.

SYPHILODERMATA—

LATE ERYTHEMATOUS—Fournier, Vidal and Besnier, iv. A-41.

NEURO-SYPHILIDES AND NEURO-LEPRIDES—Unna, iv. A-41.

TACHYCARDIA, PAROXYSMAL—L. Bouveret, i. B-37; Czermak, Nothnagel, Bristow, i. B-39; Kisch, Leyden, Fraentzel, i. B-40.

TÆNIA—Waugh, anon., Bérenger-Féraud, Tanret, i. F-7; Mensing, Descroizilles and Duchenne, Gautrelet, Duchesne, Descroizilles, i. F-8.

REMEDIES—Shaw-Mackenzie, i. F-8; L. Duchesne, Kaiser, André Martin, anon., i. F-9; Colman, Burggraeve-Chanteaud, Boas, Merck, Bedall, Flückiger, Anderson, Tanret, Méplan, Bennett, i. F-11; Bernhard Persh, Coriander, Harris, Numa Gampi, Boas, Vani, Duchesne, Weber, Dujardin-Beaumetz, Duchesne, i. F-12; Weber, Escriba, anon., Bérenger-Féraud, Parisi, J. O. de Man, Bérenger-Féraud, i. F-13; Waugh, Potain, i. F-14; Peter, Potain, i. F-15; Waugh, Potain, L. Duchesne, Rothe, Vergely, i. F. 16; Armaignac, Dudon, Saint-Philippe, Dubreuilh, i. F-17.

TANSY, TOXIC EFFECTS—W. A. Belt, S. B. Witherington, v. A-135.

TATTOO-MARKS, TREATMENT—Brocq, Variot, Dupuy, iv. A-54.

TATULETH—CROZOPHORIA TINCTORIA, TOXIC EFFECTS—J. Hornsy Casson, v. A-135.

TEETH, REFLEX NEUROSES—Hermann, iii. J-11; Kirk, iii. J-12.

AND EARS, RELATION BETWEEN DISEASES OF—Robert Barclay, Sexton, Barclay, iv. C-40; Goodwillie, iv. C-41.

TELEPHONE, INJURIOUS EFFECT UPON HEARING—Gellé, iv. C-39.

TEREBENE, THERAPEUTIC USES—George E. DeWitt, Sebastian J. Wimmer, v. A-135.

GENERAL INDEX.

Telephone, injurious effect upon hearing.....iv. C- 39

Tendons, ruptured, plastic treatment iii. G- 31

Terebene, therapeutic uses.....v. A-135

Test-meal, Klemperer's.....i. A- 15
  Sahlern's.....i. C- 7

Testicles, diseases.....iii. E- 2
  ectopia.....iii. E- 2
  hydrocele.....iii. E- 2
  tubercle.....iii. E- 4
  varicocele.....iii. E- 3

Tetanus.....iii. O- 7
  cephalic (see Brain, diseases).ii. A- 24
  etiology and pathology.....iii. O- 7
  neonatorum.....ii. L- 5
  treatment.....iii. O- 14

Tetany.....ii. C- 52
  experimental tetany.....ii. C- 53
  morbid anatomy.....ii. C- 53
  symptomatology and varieties.ii. C- 52

Thallin, therapeutic uses.....v. A-136

Therapeutics—electro-.....v. C- 1
  experimental.....v. B- 1
  general.....v. A- 1
    nomenclature.....v. A- 1

Thermic fever—insolation..... H- 80
  electric sun-stroke.....i. H- 81

Thermifugine (antipyretic).....v. A-136

THERAPEUSIS.

Tænia, in Adult (*continued*).

(2 grm.), in mucil., ℥ij (62 grm.), in morn., fol. half-hour later by ol. ricin., ℥ij (62 grm.), i. F-11. ℞ Olei tiglii, gtt. j; chloroform. ♏ xlv to lxxv (3 to 5 grm.); glycerin., ʒviiss (30 grm.)—M. S.: At one dose. Naphthalin, gr xx to xc (1.25 to 6 grm.), in powd., 2 t. d., watching irritat. effect on blad. and kidn.; myrtol. gr. ¼ (0.15 grm.), in caps., t. i. d.; embelia ribes sem., ʒj to iv (4 to 15 grm.), powd., in sweet milk, fol. by ol. ricini; thymol, ʒ ij (8 grm.), in 12 portions, fol. by ol. olivæ, ℥v (20 grm.). ℞ Ext. filicis liq., ♏ vij (0.45 grm.); calomel, gr. ss (0.03 grm.); in 2 caps., taken ev. 2 minutes until 16 caps. are taken, with antipyrin, gr. vij (0.45 grm.), to quiet intestine, i. F-12. After sevl. doses Seidlitz-Chanteaud, give of koussin [gr. xlv (3 grm.)], in caps., ev. quarter-hour [for 2 or 3 dos.], fol. by Seidlitz-Chanteaud for a few days, and finally bismuth subnit. ev. 2 hrs. for a few doses; milk and flesh of one cocoa-nut—no preparation: ext. male fern, *in large doses*, up to gr. ccccl (30 grm.), i F-13; yellow pumpkin unsatisfactory; oleo-resin male fern proced. by sal. epsom., fol. by ol. ricin. and ol. terebinth, fol. by cocoa-nut, i. F-14; miscellaneous remedies, i F-15; pumpkin-seed [℥j to ij (30 to 60 grm.) in emuls.]. ℞ Chloral hydrat., gr. xv to xxiij (1.0 to 1,5 grm.); ext. filicis æth., ♏ xxxj (2 grm.); ext. colcynth., aloes, āā gr. iss (0.10 grm.), vel olei tiglii, gtt. j to ij, vel jalapin, gr. ⅓ (0.02 grm.)—M., in 4 gelatin capsules, taken in morn., within 15 minutes after a cup of milk or coffee, i. F-16. Juice and endocarp. of cocoa-nut, v. A-44; ammon. embelate, gr. iij to vj (0.2 to 0.4 grm.), v. A-51; filix mas, v. A-53.

in Children.

Tanret's pelletierine [gr. j (0.06 grm.)], i. F-7. ℞ Ext. filicis liq., ʒss to ʒiij (2 to 12 grm.); ess. anisi. ♏ x (0.66 grm.); aq. menth. pip., ʒss (2 grm.); aq. camomel., ℥j (31 grm.); syr. simpl., ʒvj (23 grm.); syr. aurant. cort., ʒvj (23 grm.)—M., i. F-8. ℞ ext. filicis liq., ʒj (4 grm.); hydrarg. subchlor., gr. vj (0.40 grm.); sacch., ℥ij (8 grm.); gelatin, q. s. to make jelly—M. S.: For child of 4 yrs. ℞ Olei tiglii, gtt. j; chlorof., ♏ xxx (2 grm.); ol. ricini, ʒv (20 grm.)—M. No prepar. treat. necess., i. F-9. *Tanret's pelletierine*, gr. j (0.06 grm.), in syr. mannæ, for child under 5 yrs., i. F-11: naphthalin, gr. ii¼ to xxx (0.15 to 2 grm.), 2 t. d. to child of 1 to 2 yrs., i. F-12; pumpkin-seed, i. F-16.

Tansy, Toxic Effects.

Morphia and atrop., stimulants, v. A-135.

Tatto-marks.

Make new tattoo with juice of carica papaya, iv. A-54.

Tendons, Ruptured.

Aseptic tendon-suturing, iii. G-31.

AUTHORS QUOTED.

Testicles, Diseases—

Ectopia—Edm. Owen, Flanagan, Curling, Adams, Marshall, Annandale, iii. E-2.

Hydrocele — Sibthorpe, Helferich, Levis, iii. E-2; Nancrede, Barton, Hertzberg, Brun, iii. E-3.

Tubercle—Verneuil, H. Koplik, L. Jullien, iii. E-4; Lannelongue, iii. E-5.

Varicocele—Horteloup, E. Hart, P. Segond, Astley Cooper, Reclus, iii. E-3; Jamin, Geo. T. Welsh, iii. E-4.

Tetanus—

Etiology and Pathology — Lumnicser, Nicolaier and Rosenbach, Brieger, Beumer and Peiper, iii. O-7; Johannes Raum, Widenmann, Tizzoni and Lampiasi, Rosenbach, Verneuil, Le Blanc, Nocard, iii. O-8; Lefour, Abadie, Sarmani, Richelot, Terrillon, Koch, Kitasato, iii. O-9; Kitasato, Nicolaïer, Verneuil, iii. O-10; Bossano, iii. O-11; Bossano, Sibthorpe, Peat, iii. O-12.

Neonatorum — Labonne, Lop, Beumer, Evans, Shaw, Tordeus, ii. L-5; Saltman, Tordeus, Peiper, ii. L-6.

Treatment — Mackenzie, Gunn, Sheen, Washington Ayer, Casati, de Renzi, iii. O-14; Morange, Stavridis, Pugh, Flammarion, iii. O-15.

Tetany—

Experimental Tetany—Stewart, ii. C-53.

Morbid Anatomy—Schiff, ii. C-53; Carpenter, Müller, Smith, Kahler, Wichmann, Shattuck, ii. C-54.

Symptomatology and Varieties—Stewart, ii. C-52.

Thallin, Therapeutic Uses — G. L. Simmons, v. A-136.

Therapeutics—

Electro—Ambrose L. Ranney, George G. Van Schaik, v. C-1.

Experimental—Hobart A. Hare, v. B-1.

General—J. P. Croser Griffith, H. W. Cattell, v. A-1.
  Nomenclature — Annual 1889, Dujardin-Beaumetz, v. A-1; Knorr, Pouillet, Bourgoin, v. A-2.

Thermic Fever, Insolation — Hodgdon, Hume, Breitung, Prat, i. H-80.

Thermifugine (Antipyretic) — Demme, v. A-136.

Thiol, Therapeutic Uses—F. Bussi, Reeps, v. A-136.

Thioresorcin, Therapeutic Uses—E. B. Landis, v. A-136.

Thomsen's Disease—Martius, ii. C-69; Erb, Nearonow, Wising, Fleetwood, ii. C-70.

Thoracic Surgery—J. McFadden Gaston, iii. B-1.

GENERAL INDEX.

Thermogenic centres.....................v. I- 33

Thermolytic centres.....................v. I- 33

Thermo-polypnœic centre (see Brain, physiology)........ii. A- 14, v. I- 33

Thermotaxic centres.....................v. I- 33

Thiol, therapeutic uses.................v. A-136

Thioresorcin, therapeutic uses......v. A-136

Thomsen's disease.......................ii. C- 69

Thoracic surgery........................iii. B- 1
  general considerations..........iii. B- 1

Thorax—external injuries..........iii. B- 1
  foreign bodies.......................iii. B- 5
  hæmorrhage into...................iii. B- 3
  tumors.................................iii. B- 16
    dermoid cyst......................iii. B- 17
    hydatid cyst.......................iii. B- 16

Thrombosis and embolism ....ii. E- 17
  arterial thrombosis.................ii. E- 18
  chlorosis and thrombosis.......ii. E- 17
  gout and thrombosis..............ii. E- 19
  poisons and thrombosis..........ii. E- 18
  venous thrombosis ....ii. E. 17

Thrush, in newborn....................ii. L- 10

Thymol, therapeutic uses...........v. A-136

THERAPEUSIS.

Testicles, Diseases.
  Ectopia.
    Incis. through scrotum, liberation from perinæum; retain by sut. through scrot. behind testicles; suture of replaced testicle to bot. of scrot. with catgut., iii. E-2.
  Hydrocele.
    Inject. pure ac. carbol.; inject. pure tinct. iodi., iii. E-2; incis., extract loose bodies from tun. vag.; excision, iii. E-3.
  Tubercle.
    Extirpation, iii. E-4; expectant treat., iii. E-5.
  Varicocele.
    Excise veins *en masse* with port. of scrotal tissue (lat.), sut. scrotal edges.: excise redundant scrot. tiss., iii. E-3.
Tetanus.
  in Adult.
    Antisep. treat. of wounds and rest; chloral and bromide in full doses, combined; injection of morphine; tobacco-poultice to abd. in *iodopath.* cases; infus. tabaci (1 to 43) as enema in *traum.* cases; morph. and chloral; pilocarpine [gr. 1-64 to ½ (0.001 to 0.03 grm.)], hypod.; absolute rest; cotton in ears; dark room; thick carpet on floor; pat. seen ev. 4 hrs. by phys. with dark-lantern; liq. food poured into mouth; disregard constipa.; ergot and belladon. q. s. to relieve pain, iii. O-14. Quin., gr. c (6.5 grm.), repeat in 8 hrs.; acetanilide [gr. ij to xv (0.14 to 1 grm.)], iii. O-15. ℞ Manzanillo. juice. 1 p.; honey, 3 p.—M. S.: 2 to 3 drops in milk. Chloral and other sed., v. A-89; phenacetin, v. A-107.
  Neonatorum.
    Chloral, gr. lx (4 grm.), and potass. brom., gr. cl (10 grm.) —M., per rectum, in 48 hrs., ii. L-5. Small doses chloral by mouth for 1 mo. *Soltmann's plan:* Evac. of bow. by cal. or rect. enem.: warm bath ev. 3 hrs.; plenty food; chloral ev. hr. for 24 hrs.; *if persistent*, discontin. chloral and give musk, gr. ss (0.03 grm.), ev. 3 hrs., or tinct. amber, gtt. iij to v, with musk, ii. L-6.
Thermic Fever.
    Cold bathing and aconite; ipecac. gr. iij (0.20 grm.), i. H-80; antipyrin, v. A-14.
  Electric Sun-stroke.
    Ungt. bellad. around eyes and to lids; cold compr. to to eyes; occlusion; hot foot-baths; saline washes, with, later, Van Swieten's sol. [liq. hydrarg. oxymur. (B. P.), ʒss to j (2 to 4 grm.)], i. H-81.
Thorax, Tumors.
  Dermoid Cyst.
    Incis., remov. of projections, caut. of surf. with act. caut.: int. and ext. skin surf. unit. by sut., large vulcanite drain.-tube, iii. B-17.
Thyroid Gland, Tumors.
  Carcinoma.
    To relieve pain and dyspnœa. Poncet's op., iv. H-2.
  Sarcoma.
    To relieve dyspnœa, tracheotomy; irritation of muc. membr. of trachea, iv. H-2.
Tinea Circinata.
    Galv. curr., 15 to 20 milli-

AUTHORS QUOTED.

Thorax—
  External Injuries—J. McF. Gaston, iii. B-1.
  Foreign Bodies—R. C. M. Page, E. Mackey, iii. B-5; Robert Cheesman, Paulet, iii. B-6.
  Tumors—
    Dermoid Cyst—R. J. Godlee, Lauder Brunton, iii. B-17; Godlee, iii. B-18.
    Hydatid Cyst—A. Pulido, iii. B-16; Ribera, iii. B-17.

Thrombosis and Embolism—
  Arterial Thrombosis—Mallet, Vaquez, ii. E-18.
  Chlorosis and Thrombosis—Vergely, Jul. Weiss, Eberth and Schimmelbusch, ii. E-17.
  Gout and Thrombosis—J. Gordon Black, ii. E-19.
  Poisons and Thrombosis—Oscar Silbermann, G. Sée, ii. E-18.
  Venous Thrombosis—Huels, Faisoa, ii. E-17.

Thrush, in Newborn—Robin, Grawitz, Riess, Parrot, ii. L-10.

Thymol, Therapeutic Uses—Frederick P. Henry, Testi, v. A-136.

Thyroid Artery (Inferior), New Method of Reaching—Rydygier, iii. I-6.

Thyroid Bodies—
  Functions—Annual 1888 and 1889, Munk, Drobnick, v. I-43; Carle, Munk, Drobnick, Ewald, Schultze and Schwartz, v. I-44; Weil, Schultze and Schwartz, Munk, Michaelson, v. I-45.
  Thyroid Body and Plexus Rupture—Deaver, iii. I-15.

Thyroid Gland, Diseases—Franklin H. Hooper, J. Payson Clark, iv. H-1.
  Anatomy and Physiology—Defaucamberge, Ribbert, Shepherd, iv. H-1.
  Cachexia Thyreopriva—Munk and Drobnick, Langendorff, Weil, F. Fuhr, Schiff, Fano, H. V. Wyss, Tarchanoff, Herzen, H. Schwartz, Ewald, Schiff, Golgi and Rogowitsch, H. V. Wyss, iv. H-10: Albertoni and Tizzoni, Zesas, Caselli, Horsley, iv. H-11; F. Semon, iv. H-12.
  Malignant Tumors and Treatment—R. Matas, P. S. Hutchinson, P. Berger, Virchow, R. N. Wolfenden, iv. H-1; J. Solis-Cohen, Poncet, iv. H-2.

Tic Convulsif—Charcot, Mehlhauser, ii. C-66.

Tinea Tonsurans—Eichhoff, iv. A-52.

Tobacco Habit—
  Acute Poisoning—Wilkinson, Broomhead, iv. I-17.

GENERAL INDEX.

Thyroid artery (inferior), new method of reaching.....iii. I- 6

Thyroid bodies—
functions.....v. I- 43
thyroid body and plexus, rupture iii. I- 15

Thyroid gland, diseases.....iv. H- 1
anatomy and physiology.....iv. H- 1
cachexia thyreopriva.....iv. H- 10
hydatids.....iv. H- 6
malignant tumors.....iv. H- 1

Tic convulsif.....ii. C- 66

Tinea tonsurans.....iv. A- 52

Tobacco habit.....iv. I- 12
acute poisoning.....iv. I- 17
symptomatology and toxicology iv. I- 12
tobacco angina and angina pectoris.....iv. I- 16

Tongue, diseases—malignant disease iii. J- 23
diagnosis and etiology.....iii. J- 23
prognosis and treatment.....iii. J- 24
non-malignant tumors.....iii. J- 30
abscess.....iii. J- 30
fibroma.....iii. J- 30
glandular hypertrophy.....iii. J- 31
hypertrophy of glands at base.....iv. E- 12
lipoma, congenital.....iii. J- 30
macroglossa, congenital.....iii. J- 30
tuberculosis of.....iii. J- 29

Tonkin fever.....i. H- 63

THERAPEUSIS.

Tinea Circinata (*continued*).
amp. for 10 to 20 min.; subl. sol. to moist. electrodes, daily, iv. A-57.

Tinea Tonsurans.
℞ Hydroxylamine chlorhydrat., gr. 1-10 (0.006 grm.); alcoh. vel. glycer., gr. 1 (3.24 grm.)—M. S., ext. use, iv. A-52. Galv. curr., 15 to 20 milliamp. for 10 to 20 min., with sublim. sol. (1–1000 to 1–500) to moisten sponges, used daily, iv. A-57; alc. sol. anthrarobin (10% to 20%) v. A-13.

Tobacco Habit.
Acute Poisoning.
Ether, ℥ss (2.0 grm.), hypod., with drop doses vin. ipec., brandy and ammonia by mouth, iv. I-17.
Tobacco Angina.
Amyl nitrite [gtt. j to v] during attacks, and nitroglycerin [1% sol., gtt. j to v t. i. d.] in the intervals. Postpone morning smoke 10 mins. later each day, until entire day passes without indulgence, iv. I-17.

Tongue, Diseases.
Malignant Disease.
Esmarch's meth., iii. J-24; prepar. tracheot. and tamponade or not; splitting of cheek or not; Volkmann's op.; Krause's op., iii. J-24; Regnoli-Bilroth opera., iii. J-26; Barwell's op., iii. J-27; F. B. Jessett's meth. of securing lingual artery during scissor op., iii. J-28; Labbé's meth., iii. J-29.
Non-malignant Tumors.
Fibroma.
Extirpa., Warren's trocar-punch, iii. J-30.
Glandular Hypertrophy.
Argenti nitras and iodum loc., iii. J-31.
Tuberculosis.
Extirpa., iii. J-30.

Tonsils, Diseases.
Abscess, Encysted.
Galvano-caut., iv. E-6.
Hypertrophy.
Galvano-caut. in older child; when hæm. diath. is pres., iv. E-4; in young child use guillotine. Cold-wire snare with anæsth., iv. E-4; tonsillotome with ext. press. on tonsil; ablation with knife. *If hæm. after op.*, torsion with tenac., left *in situ*, iv. E-5.
with Chest Deformity.
When deform. due to tonsil. hypertr., remove tonsil; orthopæd. treat., laced corset to chest; massage and frict., iv. E-6.
Tonsillitis, Acute.
If œdema glottid., scarify epiglot.; if necess., perf. tracheot., iv. E-3. Massage, v. A-90; pot. iod. and chlorate, āā gr. v (0.33 grm.), ev. ½ h., v. A-111.
Phlegmonous.
Sublimate and ice-spray (1 to 1000), loc. appl. subl. sol. (1 to 500) with brush, 4. t. d., iv. E-3.
Tumors.
Epithelioma.
Postempski's op., iv. E-10.
Sarcoma.
Cheever's op.; enuclea. of tonsil with tonsillotome, iv. E-9; Donovan's sol. up to gtt xiv, t. i. d., with galvano-caut., ac. lactic., cryst. iod., cryst. ac. carbol. loc.; galv. caut. snare, iv. E-10.

AUTHORS QUOTED.

Tobacco Habit (*continued*).

Symptomatology and Toxicology—Von Giacich, Bosworth, iv. I-12; Burton, Kitchen, Shiels, iv. I-13; Robert, iv. I-14; Dumas, Huchard, iv. I-15; Bensen, Rochs, Tucker, anon., A. G. Auld, iv. I-17.

Tobacco Angina and Angina Pectoris—Huchard, iv. I-16.

Tongue, Diseases—

Malignant Disease—

Diagnosis and Etiology—Von Esmarch, Fedor Krause, iii. J-23.
Prognosis and Treatment—Fedor Krause, Volkmann, Billroth, Kocher, iii. J-24; E. Anders, Regnoli-Billroth, Volkmann, Schlapfer, Anders, Krause, Butlin, Garretson, iii. J-27; Barwell, iii. J-27; F. B. Jessett, iii. J-28; Léon Labbé, Le Bec, Voituriez, J. C. Warren, F. Fergusson, Lydston, iii. J-29.

Non-malignant Tumors—
Abscess—Wharton, Fleischmann, iii. J-30.
Fibroma—Kirchoff, Vincent, Warren, iii. J-30.
Glandular Hypertrophy J. Herzog, iii. J-31.
Hypertrophy of Glands at Base—Gleitsmann, iv. E-12.
Lipoma, Congenital—G. Somma, J. Perrando, iii. J-30.
Macroglossa, Congenital—Frans Bruck, iii. J-30.

Tuberculosis of—Leloir, Pulido, Mariani, C. E. Bean, W. T. Bull, iii. J-29; Kocher, Weir, iii. J-30.

Tonkin Fever—Boinet, Blanc, i. H-63.

Tonsils, Diseases—

Abscess, Encysted—Garel, Natier, iv. E-6.
Hypertrophy—
Relation to Physical Development—Uspenski, iv. E-3.
Treatment—Chas. H. Knight, Werner, Carpart, Ingals, iv. E-4; Sir Morell Mackenzie, Levis, Harrison Allen, Roe, iv. E-5.
with Chest Deformity—Bilhaut, iv. E-5; Lambron, Bilhaut, iv. E-6.

Secondary Lesions in Tuberculosis—Dmochowski, Brodowski, Strassman, Cohnheim, iv. E-7; Koch, Delavan, iv. E-8.

Syphilis—A. A. Lindstroem, M. I. Stukovenkoff, iv. E-6; Lindstroem, Carl Szadek, Tomashevsky, O. Petersen, Bëlöusoff, R. W. Taylor, Bronson, Bulkley, Allen, Sherwell, Sturgis, Fox, iv. E-7.

Tonsillitis, Acute—Haig-Brown, Ball, Lasègue, Lennox Brown, Garrod, Fox, iv. E-2; Cheadle, Ruault, Boucsein, Delavan, iv. E-3.
Phlegmonous—Massei, Cornil, Natier, Gabbi, Fränkel, iv. E-3.

Tumors, Epithelioma—Lubet-Barbon, Massei, Postempski, iv. E-10.
Sarcoma—Cheever, Agnew, Vander Veer, Richardson, W. M. Gray, iv. E-9; MacCoy, Wolfenden, iv. E-10.

GENERAL INDEX.

Tonsils, diseases........iv. E- 2
  abscess encysted........iv. E- 6
  hypertrophy........iv. E- 3
    relation to physical development........iv. E- 3
    treatment........iv. E- 4
    with chest deformity........iv. E- 5
  secondary lesions in tuberculosis........iv. E- 7
  syphilis........iv. E- 6
  tonsillitis, acute........iv. E- 2
    phlegmonous........iv. E- 3
  tumors........iv. E- 9
    epithelioma........iv. E- 10
    sarcoma........iv. E- 9
Toothache........iii. J- 11
Torticollis, pathology and treatment iii. F- 43
Toxicology........iv. J- 18
Tracheotomy........iv. F- 19
  new instruments........iv. F- 19
    Collier's dilator........iv. F- 21
    Hildebrandt's retractors and hooks........iv. F- 21
    Holden's divulsion set........iv. F- 20
  occlusion of fistulæ........iv. F- 23
  tracheotomy tubes........iv. F- 22
Transfusion........ii. E- 19
  therapy and methods........ii. E- 19

THERAPEUSIS.

TOOTHACHE.
℞ Cocain. mur., gr. xv (1.0 grm.); opii j (4 grm.); menthol, gr. xv (1 grm.); pulv. althææ, gr. xlv (3.0 grm.); glycerin, acaciæ, āā q.s.—M. ft. mas. div. in pil. of gr. ss each; one in cavity. Cott. pellets, wet with 30% sol. ac. tannic. to plug cav., iii. J-11; smoke from henbane-candles, v. A-70.

TORTICOLLIS.
Typical cases, galvan. (alternat. curr.) if seen early; op. may be needed later, iii. F-43; galvan. with loc. inject. of sol. ac. carbol. (2%), nerve-stretching (spinal accessory); galvan. and inject. of curare; section of sternomastoid through open wnd. paral. with clavicle, with or without subseq. sut. of wnd.; Levrat's op.; toxic doses of gelsemium after failure of myotomy: begin with 3 drops fl. ext., t. i. d., pushed to 24 drops 4. t. d. *In reflex* from defective eye-sight, tenot. of int. rectus, iii. F-44.

TRAUMATIC NEUROSES.
Electricity; galvan. to spine and head in a mild form; faradic brush used vigorously on anæsthetic and paretic parts, only by skilled physician; early isolation, rest-cure. *Spinal tenderness, pointes-de-feu:* Sol. ac. carbol. (2%) hypod., *loco dolente;* galvanism, arsenic and tonics; hypnotic suggestion. Isolate pat., systematic tonic treat., with potent remedies and electr. p. r. n.; *avoid* routine use of bromides, opiates, stimulants, as injurious, iii. N-7.

TREMOR.
MERCURIAL.
Small doses pot. iod. and sulphur-baths, ii. C-69.

TRICOCEPHALUS (WHIP-WORM.)
Inject tinct. catechu, i. F-21.

TUBERCULOSIS, PULMONARY.
PROPHYLAXIS.
Boil all milk, thoroughly cook all food, i. A-25; proper vessel for sputa; in case of death, rub down walls with fresh-baked bread, wash floor, disinfect bed and clothing (superheated steam), i. A-26; phthisis apartments on steamers and railway-cars; Dettweiler's spit-cup, i. A-27; pasteboard spit-cups, i. A-28.
SYSTEMIC TREATMENT.
CLIMATE.
Colorado, v. D-11, i. A-28; Jersey pine-belt, v. D-10; Davos, v. D-13; Aiken, S. C., v. D-9; sanatorium treat., v. D-6. *If tendency to hæmoptysis:* High inland mountain, with gradual, slow elevation of pat., i. A-29, v. D-6. *If syphilitic:* Sea-air, but injur. to tuberc. case, i. A-29, v. D-6. *Contra-indication to altitude:* Weak heart, excitable temperam., marked feverishness, emphysem. cond., i. A-30. Creasote (beechwood), largest dose tolera. by stomach. gr. ix to xij (0.6 to 0.8 gramme), daily, in caps., wine, or pills; guaiacol in wine (summer) or ol. morrh. (winter) by "intensive method." ℞ Guaiacol, gr. j (0 06 grm.); vini, ℥ss (15.0 grm.)—M. Sig.: t.i.d., increasing until gr. xv (1.0 grm.) of guaiacol taken daily; if nausea, by enema or emuls.;

AUTHORS QUOTED.

TOOTHACHE—C. R. Illingworth, anon., Vasili, P. Gretchinsky, iii. J-11.

TORTICOLLIS—Morits Benedikt, iii. F-43; J. Crawford Renton, J. E. Summers, Jr., Kirmisson and Ducurtil, P. Redard, Levrat. R. W. Lovett, Charles B. Williams, Weir Mitchell, iii. F-44.

TRACHEOTOMY—Ernest Mayland, Edward A. Wright, iv. F-19.

NEW INSTRUMENTS—Edgar Holden, iv. F-19; Joseph Collier, Hildebrandt, iv. F-21.

OCCLUSION OF FISTULÆ—Berger, iv. F-23.

TRACHEOTOMY TUBES—Charles E. Sajous, St. Sscs. v. Zaleski, Ruel, iv. F-22.

TRANSFUSION—

THERAPY AND METHODS—William Hunter, ii. E-19; Hare, E. D. Martin, Miles, W. H. Brown, P. J. Keegan, ii. E-20; A. W. Mayo Robson, Aveling, A. B. Anderson, Wright, ii. E-21; Münchmeyer, Henry, Pregaldino, ii. E-22; Chasan, Wiercinsky, Jacqueline, Oré, ii. E-23.

TRAUMATIC NEUROSES—E. C. Seguin, iii. N-1.

ETIOLOGY AND PATHOLOGY—F. X. Dercum, Kronthal, Oppenheim, Wichman, iii. N-3; Schaefer, Dercum, M. Meyer, Schaefer, Bruns, Charcot and Oppenheim, Meynert, Koliosko, Gray, iii. N-4; Charcot, Meynert, Benedikt, Brouardel, Pouchet, Kronthal and Sperling, Romberg, iii. N-5; Goll, Seguin, A. V. Meigs, Smith, Penrose, Erichsen, Seguin, iii. N-6.

MEDICO-LEGAL QUESTION—Seguin, iii. N-7.

NOMENCLATURE—Putnam and Walton, Charcot, Oppenheim, iii. N-1.

PROGNOSIS AND TREATMENT—ANNUAL 1889, Oppenheim, iii. N-6; Hodges, Oppenheim, Wichman, Judd, Dercum, Benedikt, Kronthal, Meynert, Seguin, iii. N-7.

SEMEIOLOGY AND DIAGNOSIS—Dercum, iii. N-1; Oppenheim, ANNUAL 1889, Kronthal, Stepp, Oppenheim, H. H. Smith, Watson, Penrose, H. Judd, Schultze, Seeligmüller, Hodges, Rigler, Vibert and La Tourette, Motet, Oppenheim, iii. N-2; Wichman, Seguin, Oppenheim, Bernhardt, Seguin, iii. N-3.

TREMOR—Preston, Brouardel, Marey, Gowers, Peterson, Edwards, Horsley, Schäfer, Beaunis, ii. C-68; Suckling, Arkle, ii. C-69.

TRICHINOSIS — Nonne and Hopfner, Paul Gibier, Louis Pasteur, Bouley, i. F-21; W. Makeig Jones, Nonne and Höpfner, anon., Vincente Ferrery Genoves, Dawson F. D. Turner, Virchow, i. F-22.

GENERAL INDEX.

Traumatic neuroses..........iii. N- 1
  etiology and pathology..........iii. N- 3
  medico-legal question..........iii. N- 7
  nomenclature..........iii. N- 1
  prognosis and treatment..........iii. N- 6
  semeiology and diagnosis..........iii. N- 1

Tremor..........ii. C- 68

Trichinosis..........i. F- 21

Tricocephalus (whip-worm)..........i. F- 21
Trigeminus, surgery of the..........iii. J- 37
  Abbe's method..........iii. J- 43
  Carnochan's method..........iii. J- 43
  Galignani's method..........iii. J- 42
  Lossen-Braun's method..........iii. J- 41
  Mikulicz's method..........iii. J- 37
  Mollière's method..........iii. J- 41
  neurectomy..........iii. J- 43
  Obalinski's method..........iii. J- 38
  relapses after operation..........iii. J- 43
  Ullmann's first method..........iii. J- 39
  Ullmann's second method..........iii. J- 40
  Zuckerkandl's method..........iii. J- 42

Tuberculosis, geographical distribution..........v. E- 35
  in animals..........v. E- 34

THERAPEUSIS.

TUBERCULOSIS, PULMONARY, SYSTEMIC TREATMENT (*continued*).

also, ext.: ℞ Creasote, p. 20; ol. morrh., p. 200—M. Sig.: For inunction at night. Creasote inhaler, i. A-31. ℞ Creasote, gr. xxxviij (2.5 grm.); cod-liver oil, ℥viss (200 grm.); saccharin, gr. ij (0.13 grm.)—M. Sig.: ʒj to iv, 1, 2, or 3 t. daily; children, smaller doses, i. A-32, v. A-44. ℞ Creosoti bit. fag., gr. lxxv (5 grm.); bals. tolu, ʒv (20 grm.); excip. amar., q.s.—M. ft. pil. no. c: 1 pill on first day, 2 on next, 3 daily for 1 wk., 4 daily next wk., until 9 pills, gr. vij (0.45 grm.) daily. By injection into back. *Bourget's wine* (for summer use): ℞ Guaiacol, ʒij (7.8 grm.); tr. quiniæ. ʒvj (23.3 grm.); vin Malacc., ℥xl (1244 grm.)—M. Sig.: 1 tablesp. t. i. d., incr. to 3 tablesp. t. i. d. *Bourget's enema:* ℞ Guaiacol, gr. xxx (2.0 grm.); ol. amygd., ʒv (19.4 grm.); pulv. acac., ʒiiss (9.7 grm.); ft. emuls. et adde aq., ℥xl (1244 grm.)—M. Sig.: For 4 enemata. *Bourget's oil (for winter use)*: ℞ Guaiacol, gr. xl (2.6 grm.); ol. morrh., ℥vj (186 grm.)—M. Sig.: 1 tablesp. with meals. ℞ Creasote, p. 20; ol. morrh., p. 200—M. Sig.: For inunction at night; cover pat. with blankets. Guaiacol, 4-drop doses in tr. gentian and sherry, t. i. d., i. A-33. *Nobili's wine:* ℞ Guaiacol, gr. xv (1.0 gm.); spts. vini rect., ℥vj ʒij (200 grm.); tinct. gentian, ʒvj ♏xv (25.0 grm.)—M. Sig.: 1 to 3 tablesp. t. i. d. incr. Also guaiacol in broth or sugar-water, i. A-34; creasote and guaiacol, v. A-46. Hot air; de Renzi's appar.: inhala. air, temp. 284° to 320° F. (140° to 160° C.), ¼ to 1 hr., i. A-34; also 350° to 360° F. (176° to 182° C.), i. A-35; 248° to 446° F. (120° to 130° C.), 1 hr. inhala., i. A-36. Camphorated naphthol: R Naphthol, p. 1; camphor, p. 2—M. Sig.: 3 drops inject. into lungs, with hyp. syr. through 1st or 2d intercost. space, i. A-36: naphthol in oil, gtt. x, subcut. ev. 2 days; menthol in oil (10% sol.), gtt. xx, intra-laryng. inject., 3 or 4 inject. at sitting, ev. day, i. A-37. Eucalyptus-oil: ℞ Emuls. (1 to 12), p. 1; ol. morrh., p. 3—M., i. A-37, v. A-44, v. A-52; thymol, gr. xlv (3.0 grm.), daily, in caps., i. A-37; bals. Peru, emulsion, iii. K-6, i. A-38; carbonic-acid gas: ℞ Sod. bicarb., 1 teasp. bef. meals, fol. by glass of water containing 12 drops ac. muriat., i. A-38: hydrofluoric acid, inhalations, i. A-38; aniline (Kremianski), inhalations, i. A-39: ozone, inhalations, i. A-39; geranium mac., in incipient stage, v. A-54; tannin, gr. xv (1 grm.), t. i. d., i. A-39; calomel, insufflation, i. A-40; mercurials, small doses int., i. A-40; phenyl-propionic and phenyl-acetic acids, i. A-40; homeriana, in decoct. (℥j ad Oij—30 grm. ad 1 litre), daily,

AUTHORS QUOTED.

TRICOCEPHALUS (WHIP-WORM)—James B. Hogg, i. F-21.

TRIGEMINUS, SURGERY OF THE—A. Obalinski, Velpeau, Paravicini, Meusel and Menzel, Bruns and Kühne, Sonnenburg and Lücke, Pancoast and Krönlein, Mikulicz, Krakau, iii. J-37.

  CARNOCHAN'S METHOD—Richardson, Langenbeck, iii. J-42; Carnochan, Abbe, iii. J-43.

  GALIGNANI'S METHOD—A. Galignani, Kühne and Sonnenburg, iii. J-42.

  LOSSEN-BRAUN'S METHOD—Paul Segond, Ullmann, iii. J-41.

  MIKULICZ'S METHOD—Mikulicz, Obalinski, iii. J-37.

  MOLLIÈRE'S METHOD—Segond, Mollière, Carnochan, iii. J-41.

  NEURECTOMY—Garretson, J. H. Glass, C. C. Boenning, Paravicini, Billroth, iii. J-43.

  OBALINSKI'S METHOD—Mikulicz, Obalinski, iii. J-38.

  RELAPSES AFTER OPERATION—Andrews, Tripier, Obalinski, iii. J-43; Andrews, Tripier, iii. J-44; Andrews, Obalinski, Wagner, Mikulicz, Langenbeck, Trzebicky, Lücke, Lossen-Braun, iii. J-45; Tripier, iii. J-46.

TUBERCULOSIS—

  GEOGRAPHICAL DISTRIBUTION—Anon., L. Schröter, v. E-35; C. Rouata, v. E-36.

  IN ANIMALS—Brit. Dept. Comm., v. E-34.

TUBERCULOSIS, PULMONARY—

  DIAGNOSIS—Sehrwald, i. A-19; Debio, Gibson, Cheyne-Stokes, N. Y. Clin. Socy., i. A-20; Kremianski, Tseslinski, Biggs, i. A-21.
    Detection of Tubercle Bacillus—Billings, Ziehl and Neelson, i. A-22; Koch, Abbe, i. A-23.

  ETIOLOGY—Cornet Bollinger, Neuhaus, i. A-1; Jöhne, Fraenkel, Bollinger, Gebhard, Hirschberger, i. A-2.
    Infected Houses—Flick, i. A-9; Niven, Engelmann, Cornet, i. A-10.
    Infected Public Conveyances—MacMullen, Bennet, Jacoby, Whittaker, i. A-11; anon., Biggs, Schwenninger, Tappeiner, i. A-13.
    Infection from Diseased Meats—Anon., iv. M-6.
    Invasion by Alimentary Canal—Niven, Kastner, Toussaint and Peuch, Bollinger, Steinheil, i. A-5; Behrend, Bollinger, Ernst, Hirschberger, i. A-6: anon., Woodhead, i. A-7; Cameron, Straus and Wurtz, i. A-9.
    Invasion by Inheritance—Cornet, Malvoz and Browvier, Jöhne, Sanches-Toledo, Strauss and Chamberland, Martin, Landouzy, Koch, i. A-4; Maffucci, i A-5.

GENERAL INDEX.

Tuberculosis, pulmonary..............i. A- 1
- **diagnosis**..............i. A- 19
  - **detection of tubercle bacillus**.i. A- 22
- **etiology**..............i. A- 1
  - **infected houses**..............i. A- 9
  - **infected public conveyances**..i. A- 11
  - **infection from diseased meats.** iv. M- 6
  - **invasion by alimentary canal** i. A- 5
  - **invasion by inheritance**.......i. A- 4
  - **invasion by lungs**..............i. A- 7
  - **invasion by sweat**..............i. A- 9
- **pathology**..............i. A- 14
  - **arteries**..............i. A- 18
  - **conformation of chest**..........i. A- 19
  - **functions of stomach**..........i. A- 14
  - **lungs and liver**..............i. A- 17
  - **predisposition**..............i. A- 18
  - **tubercle bacilli and Hueppe's cells**..............i. A- 18
- **prognosis**..............i. A- 23
- **prophylaxis**..............i. A- 25
  - **auto-infection**..............i. A- 27
- **symptomatology**..............i. A- 13
- **treatment**..............i. A- 28

Tuberculosis and scrofula, surgical iii. K- 1
- **etiology**..............iii. K- 1
- **prophylaxis**..............iii. K- 6
- **treatment**..............iii. K- 2

THERAPEUSIS.

TUBERCULOSIS, PULMONARY SYSTEMIC TREATMENT (*continued*).

i. A-41; calcium sulphide, pil. gr. ss (0.03 grm.), q. 2 h. repeat. ad gastric irrita., i. A-41; transfus. of rheumatic blood, ℥iv to ℥viij (118 to 236 c.cm.), i. A-42. Helenine: ℞ Helenine, gr. v (0.3 grm); alcohol, aq menth. pip., āā ℥ij (60.0 grm.)—M. Sig.: Teasp. in tablesp. of water, grad. incr., i. A-43. Overfeeding, i. A-43; lipanin (olive-oil with 6 % oleic acid), v. A-44; cod-liver oil, with liq. calcis., v. A-44; morrhuol, v. A-44; biniodide-of-merc. spray, v. A-59; sat. alc. sol. (1 to 6) of ac. hydrocinnamic, ♏x to xx (0.62 to 1.23 c.cm.) in water, t.i.d., v. A-66; lipanin, v. A-88; arseniate of strychnine, in liq. vasel. (½ %), 4 to 15 drops daily, v. A-96; oxygen inhala., v. A-102; resorcin, v. A-116; saccharin, gr. iss to ʒiiss (0.10 to 10 grm.), in caps.; sod. salicyl., ʒss (2 grm.), in 24 hrs., v. A-120. Tubercular vaccine, i. A-47.

ALIMENTATION.

Milk, fats, oil, goose-grease, butter, cream, soups with flour and grains, a little good wine, with open air, 60° F. (12° to 15° C.), winter temp., i. A-45.

DIARRHŒA.

Lactic acid, gr. xxx to cxx (2 to 8 grm.), in 24 hrs. Talc, ℥viij (248 grm.), in milk, 1 pint (500 grm.), daily, i. A-44. Infus. hysterionica Baylah. (1 to 150), v. A-80.

NIGHT-COUGH.

Inhala. of chloroform, v. A-36; cocillana, fld. ext., gtt. viiss; of tinct., ʒss (2 grm.), v. A-43.

NIGHT-SWEATS.

Agaric acid, gr. 1-6 (0.01 grm.), in pil. at 6 P.M.; repeat if necess. to 5 pills. Ice-bag over abd. for several hrs. during night, i. A-43. Sulphonal, gr. viiss (0.5 grm.), i. A-44; electricity, galv. and farad. curr., v. C-10; camphor, v. A-26; chloral and whisky, ext., v. A-31; agaricin, v. A-8.

TUBERCULOSIS AND SCROFULA, SURGICAL.

PROPHYLAXIS.

Sterilise by heat all meat, milk, etc.; disinfect all linen, bedding, sputa, etc.; segregate tuberc. pat., iii. K-6. Open abscesses; rest; expectant treat.; reduce op. to a min.; iodine, sea- and sulphur-baths. *Enlarged glands*, not yielding to med., to be removed. *Sacro-iliac disease*, counter-irritation by caut. when pain, lameness, or tumefac. without abscess. Mechan. rest when no abscess; when abscess, rad. op., incis. and erad.; after-treatment—asepsis, rest, extension, pelvic belt, iii. K-3. Excision of all tuberc. deposits, iii. K-4; Miller's op., iii. G-7.

MEDICAL.

Local: Iodoform and ether (sat. sol.) injection 5% sol. ℞ Iodoform, 10 p.; glycerin, 70 p.; aq. destil. ferv., 20 p.—M. Sig.: For injection. Also, iodof., gr. j.

AUTHORS QUOTED.

TUBERCULOSIS, PULMONARY, ETIOLOGY (*continued*).

Invasion by Lungs—Koch, Cornet, i. A-7; Biggs, i. A-8.
Invasion by Sweat—Di Mattei, i. A-9.

PATHOLOGY—

Arteries—N. Sh. Ippa, i. A-18.
Conformation of Chest — Maszkowski, i. A-19.
Functions of Stomach—F. Schetty, i. A-14; Klemperer, i. A-15; Marfan, Immerman, Leube and Riegel, Chelmonski, i. A-16; Grusdew, i. A-17.
Lungs and Liver—Pleshivtseff, i. A-17.
Predisposition—Biggs, i. A-18.
Tubercle Bacilli and Hueppe's Cells—Stschastny, Hueppe, Metschnikoff, i. A-18.

PROGNOSIS—G. Hunter Mackenzie, Germain Sée, i. A-23; J. Milner Fothergill, C. J. B. Williams and Hope, i. A-25.

PROPHYLAXIS—Villemin, i. A-25; Cornet, i. A-26; Moore, N. Y. Bd. of Health, Paris Comm., i. A-27.
Auto-infection—Flick, Cornet, Dettweiler, i. A-27.

SYMPTOMATOLOGY—Ayer, i. A-13.

TREATMENT—Fisk, i. A-28; Curtin, Bowditch, i. A-29; Robinson, von Brunn, Szendiak, Bourget, i. A-30; Guttmann, Sommerbrodt, Bourget, Goetz and Gilbert, i. A-31; Kossow-Geronay, Watson, Seitz, Sommerbrodt, Klemperer, Cornet, Brzezinski, i. A-32; Andreesen, Bourget, Fawitzki, i. A-33; Nobili, de Renzi, Worms, Krull, i. A-34; de Renzi, Mosso and Rondelli, Weigert, i. A-35; J. J. Kinyoun, Weigert, Trudeau, Fernet, i. A-36; Dujardin-Beaumetz, Gimbert, Bramwell, Jamieson, Philip, Baildon, Philipowicz, Schnitzler, i. A-37; Landerer, Schnitzler, Albert, Hugo Weber, Goetz, i. A-38; Hérard, Jaccoud, Grancher and Chautard, Polyák, Kremianski, Ransome, Houzé, i. A-39; Martell, Rabierski, Hall, Theodore Williams, i. A-40; Laskoff, Witherle, Bergeon, Lanigan, i. A-41; Lauder Brunton, i. A-42; Korab, Marpmann, Brehmer, Vysokóvitch, Klemperer, Leyden, Rosenbach, i. A-43; Böttrich, Sézary and Aune, Polyák, Debove, i. A-44; Dujardin-Beaumetz, Hunter Mackenzie, Filleau and Léon Petit, i. A-45; Dixon, i. A-46; Daremberg, Sansom, Bennet, i. A-47; Rogée and Boudet, Heitler, von Ziemssen, Bollinger, i. A-48.

TUBERCULOSIS AND SCROFULA, SURGICAL—

ETIOLOGY—Koch, Peters, Pavlovski, Pasteur, Modigliano, iii. K-1; Babes, Koch, Pick, Treves, Lépine, Mollière, Annandale, iii. K-2.

PROPHYLAXIS — Paris Congr. on Tuberculosis, iii. K-6.

GENERAL INDEX.

Tumors....iii. L- 1
  carcinoma....iii. L- 4
    inoculation of....iii. L- 6
    mortality....iii. L- 6
    recurrence, causes in mammary....iii. L- 4
    treatment....iii. L- 6
  coccygeal growths, congenital iii. L- 3
  enchondroma....iii. L- 1
  hydatid cysts....iii. L- 2
  lipoma of neck....iii. L- 8
  lymph-cysts....iii. L- 1
  sarcoma of omentum....iii. L- 7
    of pterygoid plate....iii. L- 8
  treatment....iii. L- 8
Turpentine, toxic effects....v. A-136
Tympanites, puncture for....iii. C- 2
Typhlitis — perityphlitis — appendicitis....iii. C- 36
Typhoid fever. See (enteric) Typhoid fever....iv. A- 44
Typhus fever....i. A- 52
  complications, typhus and enteric fevers....i. H- 54
  epidemics of....iv. M- 3
  mixed infection....i. H- 52
  statistics....i. H- 55
Tyrotoxicon, toxic effects....v. A-137

THERAPEUSIS.

TUBERCULOSIS AND SCROFULA, MEDICAL (*continued*).

(0.06 grm.); powd. coffee, gr. ij (0.12 grm.)—M. Sig.: Intern. t. i. d. Calomel intern. Camph. naphthol: ℞ Naphthol, 1 p.; camphor, 2 p.—M. Sig.: Ext. with brush, iii. K-5. Bals. Peruv. on gauze loc. Also: ℞ Bals. Peruv., mucil. acac., āā gr xv (1 grm.); ol. amygdal., q.s.; ft. emuls. adde sod. chlor., gr. cv (7 grm.); aq. dest., ℥iii½ (100 grm.)—M.: Inject. into cavity, iii. K-6, i. A-38; copper oint. loc.; neutral acetate int., v. A-45; ichthyol, *in nasal form with ozæna*, v. A-80; iodol. *on skin-lesions*, v. A-83. *In adenitis*, iodol, gr. viiss to xxiij (0.50 to 1.50 grm.), daily, with iodol and vasel. (1 to 15) ext., v. A-84.

TUMORS.

CARCINOMA.

Mammary: If tumor be perfectly free and movable, remove entire growth with surround. tis., also the superfic. part of the muscle; if tum. adh. to pector. major, extirpate entire muscle, iii. L-5. Interrup. voltaic curr.; anæsthesia; pass current through tum. and all tiss. for some inches around it, through fine insula. needles; 70 cells, e.m.f., 105 volts; intensity 10, incr. to 600 milliamp.; 50 to 100 times through growth at each *séance*, iii. L-6. Temporary cicatrization: Freshen surface of cancer with sharp scoop or knife, suture flap of surround. healthy skin over the surf.; skin-grafts on surf. where flap was. Savine and burnt alum loc. with skin-grafts, followed by method. antisep. dressings; escharotics, iii. L-7.

COCCYGEAL GROWTHS, CONGENITAL.

Complete excision, iii. L-3.

ENCHONDROMA.

Hand, amputation on account of weight, iii. L-2.

HYDATID CYSTS.

Incision; cyst-wall part. dissected away, scraped with Volkmann spoon; later, complete removal by dissection, iii. L-2.

LYMPH-CYSTS.

Traumatic, incision of sac, extirpa. of neighboring lymphatic glands, iii. L-1.

LIPOMA OF NECK.

Extirpation, iii. L-8.

SARCOMA OF OMENTUM.

Remove by abd. section, iii. L-8.

OF PTERYGOID PLATE.

Lig. around com. carot. art. to prev. hæm. during op.; lig. removed on 5th d., iii. L-8.

TYMPANITES.

Puncture with round pt., smallest size; antisept. toilet of abd. bef. p. When gas has escap., inject a little water to cleanse trocar, withdraw by quick mot.; seal abd. wnd. with iodof. collod.; p. stomach only when obstr. of œsoph. prevents relief by tube. Try knee-elbow posit. before using p., iii. C-3.

TYROTOXICON, TOXIC EFFECTS.

Free emesis, v. A-137.

AUTHORS QUOTED.

TUBERCULOSIS AND SCROFULA, SURGICAL (*continued*).

TREATMENT—Howard Marsh, iii. K-2; Hofmokl, Kay, Van Hook, iii. K-3; Mollière, Leclerc, Verneuil, Forgue, Annandale, Treves, iii. K-4; Verneuil, Hofmokl, Dollinger, anon., Martell, Fernet, iii. K-5; Albert, Landerer, Vámossy, iii. K-6.

TUMORS—Morris Longstreth, Charles Bingham Penrose, iii. L-1.

CARCINOMA—

INOCULATION OF — Hanau, Rémond, iii. L-6.

MORTALITY—Sir Spencer Wells, Fordyce Barker, iii. L-6.

RECURRENCE, CAUSES IN MAMMARY—Heidenhain, iii. L-4; Creighton, Sir Spencer Wells, iii. L-5.

TREATMENT—J. Inglis Parsons, P. Kraske, iii. L-6; Lauenstein, J. C. Munroe, W. R. Williams, Billroth, Czerny, iii. L-7.

COCCYGEAL GROWTHS, CONGENITAL — W. Alexander MacKay, Bland Sutton, Vincent, iii. L-3; J. Hutchinson, Bland Sutton, MacKay, iii. L-4.

ENCHONDROMA—Von Recklinghausen, iii. L-1.

HYDATID CYSTS—Reclus, Volkmann, Verneuil, Dupuytren, Gosselin, iii. L-2.

LIPOMA OF NECK—Payson T. Huckins, iii. L-8.

LYMPH-CYSTS—L. Heusner, iii. L-1.

SARCOMA OF OMENTUM—P. Goullioud and J. Mollard, iii. L-7; Laroyenne, iii. L-8.
OF PTERYGOID PLATE—Treves, iii L-8.

TREATMENT—Payson T. Huckins, Treves, iii. L-8.

TURPENTINE, TOXIC EFFECTS—Ernst Felbes, v. A-136.

TYMPANITES—

PUNCTURE FOR—ANNUAL 1889, Jno. W. Ogle, iii. C-2; J. Jenkyns, W. L. H. Blenkarne, Wm. Oxley, iii. C-3.

TYPHLITIS—PERITYPHLITIS—APPENDICITIS—Weir, iii. C-37; Jacobus, Wylie, Abbe, iii. C-38; Bull, iii. C-39.

TYPHUS FEVER—

COMPLICATIONS—Christie, i. H-54; Murchison, Gairdner, Russell, Perry, Hlava, i. H-55.

EPIDEMICS OF—Anon., iv. M-3.

MIXED INFECTION—Nixon, i. H-52.

STATISTICS—Seliger, i. H-55.

TYROTOXICON, TOXIC EFFECTS—J. N. Martin, v. A-137.

GENERAL INDEX.

- Ulcers..........iv. A- 49
  - perforating, of elbow, following neuritis..........iv. A- 47
  - skin-grafts in..........iii. G- 31

- Ulexine, toxic effects..........v. A-137

- Umbilicus—antisepsis..........ii. L- 2
  - hæmorrhage..........ii. L- 2

- Urachus, patent..........ii. L- 20

- Uræmia..........i. G- 32

- Uralium (hypnotic)..........v. A-137

- Uranoplasty..........iii. J- 25

- Urea, excretion and estimation...iv. K- 39

- Ureters, diseases..........iii. E- 30
  - carcinoma..........iii. E- 31
  - catheterization of ureter..........iii. E- 30
  - stone..........iii. E- 30

- Urethra, female, diseases..........ii. H- 19
  - mucous membrane, prolapse..ii. H- 19
  - tumors, vascular polypoid.....ii. H- 19

- Urethra, male, diseases..........iii. E- 5
  - double urethra..........iii. E- 5
  - meatotomy..........iii. E- 7
  - new instruments — grooved sounds, J. N. Rhodes's...iii. E- 12
    - irrigator, Lang's..........iii. E- 11
    - speculum, F. T. Brown's....iii. E- 6
    - urethro-endoscope, N. P. Fedtchenko's..........iii. E- 13
    - urethrograph, R. W. Stewart's iii. E- 13
    - urethroscope, W. K. Otis's.iii. E- 7
    - urethrotome, registering, dilating, Gerster's..........iii. E- 16
  - stricture and treatment..........iii. E- 14
    - deep urethral stricture.......iii. E- 17
  - urethritis, gonorrhœal..........iii. E- 7
    - membranous desquamative.iii. E- 12
    - papillomatous..........iii. E- 13
  - urethrography..........iii. E- 13
  - urethro-perineal fistula..........iii. E- 18
  - urethro-rectal fistula..........iii. E- 18
  - urethroscopy..........iii. E- 6
  - urethrotomy..........iii. E- 16

THERAPEUSIS.

ULCERS.
Skin-graft, iii. G-32; graft of cock's wattle; frog-graft; chicken-graft; iii. G-33; frog-graft, iii. G-34. Resorcin; bism.; ac. pyrogal., ac. salicyl., iodoform, loc. ℞ Salol, 1 p.; amyli, 2 p.—M. Use loc. also in oint. [1 to 8], iv. A-49. Iodof., v. A-83; scale-pepsin and lanolin (1 to 5), v. A-104; sat. sol. potass. permang., app. loc. ev. alt. d. for 12 d., v. A-104.

UMBILICUS, DISEASES.
ANTISEPSIS.
Disinfect stump in 5% sol. ac. carbol., then dressing of plaster of Paris; ac. salicyl. and starch, or talc and dress. of absorb. cotton; salicin, iodof., sublimate dressings; pot. permang. in first bath, ii. L-2.
ERYSIPELAS.
Sol. creolin (1%), v. A-47.
HÆMORRHAGE.
In interv. of respir., when abd. walls are lax, pass hare-lip pin through an inch (2.5 cm.) of abd. wall at lev. of lower edge of umbil.; if necess., fig.-of-8 sut., ii. L-2.

URACHUS, PATENT.
Willard's op., ii. L-21.

URÆMIA.
Ether hypod., sod. benzoate [gr. iv to xv (0.25 to 1 grm.)]. Morph. to counteract eff. of retained urin. poisons, i. G-33; Oxygen inhala., v. A-102.

URETERS, DISEASES.
STONE.
Dilate urethra, forceps and curette, iii. E-30.

URETHRA, FEMALE, DISEASES.
MUCOUS MEMBRANE, PROLAPSE.
Removal with Paquelin cautery, ii. H-19; ligature and slough, ii. H-20.
TUMORS, VASCULAR, POLYPOID.
Excision, fol. by cautery, ii. H-19.

URETHRA, MALE, DISEASES.
STRICTURE.
Electrolysis, 2½ to 5 milliamp., iii. E-14, v. C-22; linear electrol., iii. E-15; urethrotomy, iii. E-16.
DEEP URETHRAL.
Perineal section, iii. E-17; dilatation, if *spasmodic*; section if *fibrous*, with subseq. use of large sounds; excection if *innodular*, iii. E-18.
URETHRITIS, GONORRHŒAL.
Sublimate sol. (1 to 2000); hypnotism, iii. E-9. Inj. argent. nitr. sol. (1 to 30); ol. santali capsul., 4 t. i. d. Then inject twice daily: ℞ Argent. nitr., gr. iv (0.25 grm.); tinct. opii, gtt. xv; aq. ℥iii½ (100 grm.)—M. One inject. Argent. nitr. sol. (1 to 10); sol. argent. nitr. (1 to 90). Bristle-mop., No. 11 F, to swab out ureth. (cocaine anæsth.), then inject subl. sol. (1 to 1000) t.i.d., iii. E-10; Zeisler's powder-packer of slight use. Deep ureth. irriga., iii. E-11; sol. ac. acet. (1% to 4%), v. A-7. *Chronic:* Ribbed sounds and ointments; Rhodes's grooved sounds, with ungt. ℞ Argent. nitr., gr. x (0.7 grm.); tinct. benzoin. co., gtt. xv (1.0 grm.); ungt. petrol., ℥j (29.5 grm.). *Unna's salve:* ℞ Arg. nit., 1 pt.; yel. wax, 2

AUTHORS QUOTED.

ULCERS—Schwimmer, iv. A-49.
PERFORATING, OF ELBOW, FOLLOWING NEURITIS—Helbing, iv. A-47.

ULEXINE, TOXIC EFFECTS—A. W. Gerrard, E. H. Fenwick, Pinet, v. A-137.

UMBILICUS—
ANTISEPSIS — Penrose, Fagonski, Runge, Epstein, ii. L-2.
HÆMORRHAGE—Dakin, ii. L-2.

URÆMIA — Thudichum, Lépine, Bouveret, Holland, Moore, Stallard, Debove, i. G-32; Charcot, Girode, Dunin, Peter, Partzevsky, Mackenzie, Loomis, i. G-33.

URALIUM, HYPNOTIC — Gustavo Poppi, v. A-137.

UREA — Gerhard and Quinquaud, Rauzier, Rommelaere, iv. K-39; Gautrelet, Bleibtreu, iv. K-40.

URETERS, DISEASES—
CARCINOMA—Chismore, iii. E-31.
CATHETERIZATION OF URETER—P. Poirier, iii. E-30; Nitze, Boisseau du Rocher, iii. E-31.
STONE—F. Eklund, Berg, iii. E-30.

URETHRA, FEMALE, DISEASES—
MUCOUS MEMBRANE, PROLAPSE — Herman, Emmet, Thomas, Moraud and Richard, ii. H-19.
TUMORS, VACULAR POLYPOID — Jondeau, Dubar, Schwarts, ii. H-19.

URETHRA, MALE, DISEASES—
DOUBLE URETHRA—J. English, iii. E-5.
MEATOTOMY—J. C. Olmstead, iii. E-7.
STRICTURE AND TREATMENT—L. B. Bangs, J. P. Bryson, R. Newman, iii. E-14; Brewer and Otis, J. A. Fort, Consell and Westheimer, iii. E-15; Berkeley Hill, Fort, Lavaux, Jardin, F. F. Sanders, Newman, Keyes, Bas, Vergne, iii. E-16.
DEEP URETHRAL STRICTURE—Keyes, iii. E-17.
URETHRITIS, GONORRHŒAL—Neisser, Lustgarten and Mannaberg, E. Legrain, iii. E-7; Diday and Doyon, Steinschneider, Rodait, Maurice, Strauss, Roux, Neisser, iii. E-8; Gram, Neisser, Roux, Winter, P. Dugloux, iii. E-9; Alf. Poussin, Diday, J. Huguet, iii. E-10; Zeisler, A. Lanz, Zulzer, ANNUAL 1888, C. Schultze, iii. E-11; J. N. Rhodes, Unna, Szadek, Bénique, Sperling, iii. E-12.
MEMBRANOUS DESQUAMATIVE—Pajor, iii. E-12.
PAPILLOMATOUS — F. M. Briggs, Oberländer, N. P. Fedtchenko, P. T. Diakonoff, iii. E-13.
URETHROGRAPHY—R. W. Stewart, iii. E-13.
URETHRO-PERINEAL FISTULA—Guyon, iii. E-18.
URETHRO-RECTAL FISTULA—Ziemlicki, iii. E-18.
URETHROSCOPY—F. T. Brown, W. K. Otis, iii. E-6.
URETHROTOMY — Gerster, iii. E-16; Otis, Kirmisson, Wolfler, iii. E-17.

URIC-ACID DIATHESIS, ETIOLOGY — Horbaczewski, Berend and Roosen, iv. K-41; Draper, Haig, Polk, iv. B-42; Liveling, Broadbent, D'Estrées, Haig, Spilker, Salkowski and Spilker, Taniguti, iv. B-43; Taniguti, Auerbach, Spilker, Salkowski, Ludwig, iv. K-44.
THERAPY—Haig, iv. K-44; Draper, Haig, Johnson, Durand-Fardel, iv. K-45; Le Clercq, iv. K-46.

GENERAL INDEX.

Uric-acid diathesis, etiology........iv. K- 41
therapy........iv. K- 44
Urinalysis........iv. K- 1
technique........iv. K- 59
Urine, action of snake-poison on...v. B- 47
alterations in quantity........iv. K- 1
casts........iv. K- 61
chlorides........iv. K- 50
chylous........iv. K- 36
color and coloring material...iv. K- 4
cystin........iv. K- 37
gas in........iv. K- 57
incidental substances........iv. K- 50
micro-organisms........iv. K- 55
microscopy........iv. K- 60
pigments........v. I- 36
preservation of formed elements iv. K- 59
ptomaines........iv. K- 37
reaction........iv. K- 9
senile changes in........ii. N- 2
specific gravity........iv. K- 9
technique........iv. K- 59
tests for—acetone........iv. K- 35
albumen........iv. K- 16
bile........iv. K- 35
creatinin........iv. K- 48
iron........iv. K- 52
mercury........iv. K- 51
peptones........iv. K- 21
phosphates (earthy)........iv. K- 49
potassium iodide........iv. K- 51
propeptones........iv. K- 21
pyrocatechin........iv. K- 35
sugar........iv. K- 30
urea........iv. K- 40
uric acid........iv. K- 46
toxicity........iv. K- 53
in pneumonia........i. A- 62

THERAPEUSIS.

Urethra, Male, Diseases, Urethritis, Gonorrhœal (*continued*).
to 5 pts.; bals. of Peru, 2 pts.; ol. theobrom., 100 pts.—M. *Sperling's oint.*: ℞ Arg. nitr., 0.1 to 0.3 pt.; wh. wax, 4 pt.; lanolin, 20 pts.—M., on Bénique tin bougies, left in 2 to 3 minutes, iii. E-12; hydrastis inject., v. A-66; thallin sol. (1 %) in ac. (5 %), in chronic cases, v. A-136.

Papillomatous.
Curette and raclage; inject. sol. potass. permang.; cutting-endoscope, iii. E-13.

Urethro-perineal Fistula.
If unindurated, dilate urethra; *if indurated*, dissect out indur. with the pouch near urethral surf., iii. E-18.

Urethro-rectal Fistula.
Detach, mobilize extra-periton. port. of rectum; suture orif. separately and rotate rectum, iii. E-18.

Uric-acid Diathesis.
Sod. phosphate, iv. K-44; acids, diet, avoiding meats, sugars, beers, wines, etc.; take milk, fruit, vegetables, and fats, as butter; withdraw non-nitrog. food; use meats. Saline waters taken hot; Hunyadi, Püllna, Friedrichshalle, Contrexéville, Vittel, Martigny, Hencheloup, iv. K-45; Vichy, Vals, Capvern, Preste, Pougues, Carlsbad, iv. K-46.

Urticaria, Chronic.
Gastro-intest. form: Regimen and alkalies. *Nervous form*: Antipyr., gr. viij (0.5 grm.), daily, iv. A-6.

Uterine Displacements.

Anteflexion.
Abbot's op., ii. F-4.

Inversion.
Cupped rubber bag and bands; Marcy's appar., ii. F-10.

Prolapsus.
Uter. massage, ii. F-7, ii. F-8; Péan's op., ventrofixation, Le Fort's op., ii. F-9; extirpation of ut. with resect. of vag., ii. F-10.

Retrodisplacements.
Posture and pessaries, ii. F-4. *If adhesions post.*, laparot. and separa. of adhes., or Schultze's meth.: Alexander's op., ii. F-5; vaginal hysterorrhaphy, ventral fixation, hysterorrhaphy, or hysteropexy, ii. F-6; uterine massage, ii. F-7.

Uterus, Diseases.

Carcinomata and Sarcomata *Medical*: Turpentine sol. inaq. (1 to 128), loc. applica. t. i. d.; Chian turpentine: antipyrin, *for pain*, in gr. x (0.7 grm.) doses. Hot vag. inject. (40°C.—104°F.) for half-hour twice d., ii. F-36. *Caustics*: Zinc. chlor. pledgets, on surf., 24 hrs.; sharp curette fol. by 50 % sol. zinc. chlor., ii. F-37. Galvano-cautery: remove cervix with gal.-caustic loop, and caut. ut. cav. and cervical stump, ii. F-38. *Electrical*: Electrolysis, 70 cells, e. m. f., of 105 volts, 10 to 600 milliamp., ii. F-37. *High amputation*: Hysterectomy, ii. F-38; vaginal *hysterectomy*, with asepsis and careful closure of peritoneum by suture. Exub. masses removed by curette, surf. caut.: bichlor. irriga. (1 to 1000), ii. F-39. Ac. salicyl.

AUTHORS QUOTED.

Urinalysis—Allen J. Smith, iv. K-1.

Urine—

Action of Snake-poison on—Feoktistow, v. B-47.

Casts—Török and Pollak, Annual 1889, Verhoogen, von Hoesslin, iv. K-61; Bartels, iv. K-62.

Chlorides—Lehmann, Glogner, iv. K-50.

Chylous—Solis-Cohen, Lucas, iv. K-36; Desmeth, Sigmund, iv. B-37.

Color and Coloring Materials—Humphreys, iv. B-4; Thudichum, Rosenbach, iv. K-5; Rosenbach, Salkowski, Rosin, Rosenbach, Berzelius, Schunck, Baeyar, Ewald and Hamlich, iv. K-6; Ewald, Rosenbach, Churton, Chiari, Kahler, iv. K-7.

Cystin—Baumann, Goldmann, iv. K-37; Brieger, Stadthagen and Brieger, Baumann, Leo, Czapek, iv. K-5.

Gas in—Müller, iv. K-57.

Incidental Substances—Marsh, Mlle. Chopin, Heuss, iv. K-50; Colasanti and Moscatelli, Ehlers, Levison, Caseneuve, Brugnatelli, iv. K-51; Putnam, Gottlieb, iv. K-52; Gottlieb, iv. K-53.

Micro-organisms—Guyon, Peyer, Ultzmann, iv. K-55; Schottelius and Reinhold, Doyen, Clado, iv. K-56; Russo-Gilliberti and Dotto, Tyndall, Pasteur and Van Tiegheim, Miquel, Flügge, Leube, Heraeus, Warrington, Clado, Hallé and Albarran, iv. K-57.

Microscopy—O'Neill, Handford, Walker, Kinnicutt, iv. K-60.

Pigments—MacMunn, v. I-36.

Preservation of Formed Elements—Cockey, Wendriner, iv. K-59.

Ptomaines—Baumann, Goldmann, iv. K-37; Brieger, Stadthagen and Brieger, Baumann, Leo, Czapek, iv. K-38.

Reaction — Woods, Gaube, Grouzdeff, iv. K-9.

Senile Changes in—Massé, Lépine, ii. N-2.

Specific Gravity—Ruttan, Oliver, iv. K-9.

Tests, for—

Acetone—Chantard, Romme, anon., iv. K-35.

Albumen—George Roch, Heller, Ruttan, iv. K-16; Carette, Hoffmann, Boymond, Raabe, Heller, Christensen, Annual 1889, iv. K-17; Patein, Paton, iv. K-18; Esbach, Boymond, iv. K-19.

Bile—Oliver, iv. K-35; Modigliano, iv. K-36.

Creatinin—Baldi, Succi, Neubauer, iv. K-48.

Iron—Gottlieb, iv. K-52.

Mercury — Caseneuve, Brugnatelli, iv. K-51.

Peptones — Raymond, Hofmeister, Georges, Tanret, iv. K-21.

Phosphates (Earthy)—Marshall, Woods, iv. K-49.

Potassium Iodide—Ehlers, Levison, iv. K-51.

Propeptones—Loeb, Fischer, von Köppen, iv. K-21.

Pyrocatechin—Magni, iv. K-35.

Sugar—Kisch, Moritz, Fischer, Germain Sée, Swift, iv. K-30: Hagar, Grismer, Crismes, iv. K-31; Yvon and Berlioz, Fehling, Fischer, Gaube, Gentile, Roberts, Budde, Worm-Müller, iv. K-32; Gaube, Wedensky, Baumann, iv. K-33; Fehling, Landwehr Albertoni, Millon, Hdranski, Baumann, Malerba and Sanna-Salaris, iv. K-34; Albertoni, iv. K-35.

Urea—Gautrelet, Bleibtreu, iv. K-40.

Uric Acid—Haycraft, Hermann, Volhard, Salkowski-Ludwig, Gautrelet, Huffner-La Source, iv. K-46; Arthaud and Butte, iv. K-47.

Toxicity—Bouchard, Godet, Lépine, Stadthagen, iv. K-53; Lépine, Schifer, Bouchard, Girgens and Baumann, Gautier, Roger and Gaume, Robin, Thudichum, iv. K-54.

in Pneumonia—Roger and Gaume, i. A-62.

GENERAL INDEX.

Urobilin and urohæmatoporphyrin..v. I- 36
  origin of urobilin....................v. I- 42

Urochrome and derivatives.........iv. K- 5

Urticaria.....................................iv. A- 5
  capillary pulse in lesions of...iv. A- 5
  chronic, varieties..................iv. A- 6
  pigmentosa...........................iv. A- 6

Uterine displacements..................ii. F- 1
  anteflexion.................................ii. F- 4
  general considerations...........ii. F- 1
  inversion.....................................ii. F- 10
  prolapsus....................................ii. F- 7
    extirpation, with resection of vagina..........................ii. F- 10
    Le Fort's operation.............ii. F- 9
    operative treatment............ii. F- 9
    uterine massage..................ii. F- 7
  retrodisplacements....................ii. F- 4
    relations to pregnancy........ii. F- 7
    treatment..........................ii. F- 4
      Alexander's operation.....ii. F- 5
      vaginal hysterorrhaphy...ii. F- 6
      ventral fixation, hysterorrhaphy, or hysteropexy.ii.F- 6

Uterus, diseases..........................ii. F- 34
  carcinomata and sarcomata...ii. F- 34
    early diagnosis....................ii. F- 34
    rare cases..........................ii. F- 35
      adeno-myxo-sarcoma.......ii. F- 35
      adeno-sarcoma with pyometra...............................ii. F- 36
      sarcoma of internal genitals..................................F- 36

THERAPEUSIS.

Uterus, Diseases, Carcinomata and Sarcomata (*continued*).

irriga. (1 to 300) when pus.; close periton., wash vagin.; if vulva does not close well, use loose salicyl.-gauze tampon, removed in 8 d.; sut. and lig. removed after 16 d. Forcipressure on stump after hysterectomy; Hunter's op., ii. F-40; "Zuckerkandl's meth." of hysterectomy, "Kraskes method," ii. F-42: abdominal hysterectomy, ii. F-43; Widedow's resection of sacrum, iii. G-10. *Hæmorrhage:* Transfus. sal. sol. and defibr. blood, ii. E-21.

Fibromata.

Medical: Savin, min. viij (0.50 grm.), daily, in divid. dos. ev. 3 hrs. for mos. and yrs.; omit ev. 3d mo. and at menstr. per., ii. F-22. *Electrical:* Apostoli's method, ii. F-22; "Lymph drainage" by galvano-caust. perfora. of the capsule of tumor; button-shaped electrode to pos. pole. 80 to 150 milliamp., ii. F-25. *Surgical:* Avoid premat. removal of sessile fibroids per vag. *If near os*, oxytocic treat., dilat. cervix. *If at fundus*, abdom sect., ii. F-26. Double's oöphorect. for relief of hæmorr. from inoperable fibroids, ii. F-27. Enucleation per vaginam, if small, submucous, or polypoid: vaginal hysterectomy: vaginal enucleation of fibroids, ii. F-28. Laparotomy, ii. F-29. Tying and dropping pedicle dangerous as a rule; clamp safer, with pedicle extraperiton. Treub's method, Fritsch's meth., ii. F-30; Kelly's elastic lig. of ped.; dry extra-periton. treat. of ped. (ac. salicyl., bismuth, iodof.); delta-metal wire for clamp, ii. F-32.

Cervical Lacerations.

Palliative, General.

Nutr. digest. diet and tonics. Lemonade iron: ℞ Strychnine sulph., gr. ss (0.03 grm.): tinct. ferri chlor., fʒiv (14.8 grm.); ac. phosp. dil., fʒvj (22.2 grm.); syr. limon., q. s. ad f℥vj (177 c.cm.)—M. Sig.: 2 teasp. t.i.d. *In nervous cases*, use ℞ Ammon. chloridi, ʒij (8.0 grm.); ammon. brom., ʒiv (15.5 grm.); tinct. gent. co., aquæ, āā ℥iij (88.7 grm.)—M. Sig.: 2 teasp., t.i.d. *In anæmic cases*, use ℞ Ext. sumbul, ferri sulph. exsic., āā gr j (0.06 grm.); assafœt., gr. ij (0.13 grm.); ac. arsenios., gr. 1-40 (0.0016 grm.)—M. ft. pil. no. j. Sig.: Pil. sumbuli co., 1 pill aft. meals, incr. to 6 pills daily.

Local.

Cleanliness of genitals: vagin. wash (bichlor. sol. [1 to 8000] twice daily). Relieve loc. congest. of expos. raw surf. Tampons of subl. wool with iodof. and ac. borac. to keep torn edges in apposit.: subl. douche (1 to 8000). Remove pads in 2 or 3 d. and renew, iii. F-11. Sod. sozoiodol pulv. insuffl. on cervix, dry tampon, v. A-124.

Operative.

Early closure, 1 mo. after partur.; scrape and freshen torn surface and angles of rent; catgut sut.; Duke's

AUTHORS QUOTED.

Urochrome and Derivatives—Thudichum, iv. K-5.

Urticaria—
  Capillary Pulse in Lesions of—Hirtz, Renaut, Du Castel, Buerman, iv. N-6.
  Chronic, Varieties—Milot, Hardy, iv. A-6.
  Pigmentosa—Dubois-Havenith, Raymond, iv. A-6.

Uterine Displacements—
  Anteflexion—A. W. Abbott, ii. F-4.
  General Considerations—Ernest Herman, ii. F-1; Kellogg, ii. F-2; Julia W. Carpenter, Lapthorn Smith, Jennes-Miller, ii. F-3.
  Inversion—G. T. Harrison, W. Newman, H. R. Hatherly, Aveling, Gowen, Marcy, ii. E-10.
  Prolapsus—Vignard, ii. F-7.
    Extirpation, with Resection of Vagina—Asch, ii. F-10.
    Le Fort's Operation—Charles E. Taft, ii. F-7; Berlin, Thomas, Hicquet, Eustache, Zancarol, Duplay, Guenoit, Slaviansky, Neugebauer, Broomal, Smith, Cushier, Allen, Berlin, ii. F-10.
    Operative Treatment—Péan, Terrier, Polaillon, ii. F-9.
    Uterine Massage—Brandt, Fellner, Boriakowski, Semjännikow and Halbertsma, Pawlik, Weissenberg, Reibmayr, Alfred J. Smith, E. Leblond, Macan, Alfred Goenner, Macnaughton Jones, Koplik, ii. F-7; Boldt, Sielski, ii. F-8.
  Retrodisplacements—Eccles, ii. F-4.
    Relations to Pregnancy—Martin, ii. F-7.
    Treatment—Richard Hogren, Eklund, Ricketts, Nowlin, ii. F-4; Skutsch, Schultze, Annual 1889, Strong, Gottschalk, ii. F-5.
      Alexander's Operation—Abbot, Alloway, Baker, Berruti, Debierre and Dutilleul-Peltier, Tod Gilliam, Potherat, Strong, Schwartz, Ségond, Trélat Zajaitsky, Roux, Richelot, Gairal, Polk, Alexander, ii. F-5.
      Vaginal Hysterorrhaphy—Candelia Marion Sims, ii. F-6.
      Ventral Fixation, Hysterorrhaphy, or Hysteropexy—W. H. Brown, Frank, Terrier, Cushier, Leopold, Picque, Pozzi, Prochownik, Sänger, Strong, Zeiss, Zinsmeister, Debierre, Pozzi, Verchere, Spaeth, Leopold, Schultze, Küstner, ii. F-6; Sänger, ii. F-7.

Uterus, Diseases—
  Carcinomata and Sarcomata—
    Early Diagnosis—Coe, ii. F-34; More-Madden, G. E. Shoemaker, H. Meyer, R. B. Maury, Landau and Abel, L. Landau, Coe, ii. F-35.
    Rare Cases—Mundé, ii. F-35; T. W. Kay, Guttmann, ii. F-36.
    Treatment—
      Abdominal Operations—Terillon and Largeau, Zweifel, ii. F-43; Ruggi, Goodell, Halley, ii. F-44.
      by Caustics—Braithwaite, A. Reeves Jackson, Mundé, ii. F-37; Jno. Byrne, ii. F-38.
      Electrical—Inglis Parsons, ii. F-36.
      High Amputation and Hysterectomy—Landeau and Abel, Coe, Verneuil, Williams, Duchamp, ii. F-38; More-Madden, Coppens, J. B. Hunter, Jacobs, Boerner, Liebmann, Cushing, Byford, Kufferath, Rubeska, Kaltenbach, Muenchmeyer, ii. F-39; Rubeska, E. J. Abbott, E. Börner, J. E. Burton, Cushing, Felsenreich, Fénélon, Wm. Gardner, Groves, G Halley, J. B. Hunter, J. T. Johnson, Kaltenbach, Keller, Kümmel, L. Landau, G. B. Lawrason, Leriche, McNutt, E. E. Montgomery, Munchmeyer, Paquet, Rouffart, Satow, J. H. Scarff, C. H. Stratz, G. V. Tuttle, Wathen, R. Winslow, ii. F-40; Cushing, Stratz, ii. F-41; Kraske, Zuckerkandl, ii. F-42.

GENERAL INDEX.

Uterus, diseases, carcinomata and sarcoma (*continued*).
  treatment ....ii. F- 36
    abdominal operations ......ii. F- 43
    by caustics........................ii. F- 37
    electrical.........................ii. F-36
    high amputation and hysterectomy........................ii. F- 38
    Kraske's method ....ii. F- 42
    medical.............................ii. F- 36
    Zuckerkandl's method.....ii. F- 42
  cervical lacerations................ii. F- 10
    operative treatment...........ii. F- 12
    palliative treatment..........ii. F- 10
  endometritis...........................ii. F- 13
    chronic tubercular.............ii. F- 18
    diagnosis...........................ii. F- 13
    treatment...........................ii. F- 14
  fibromata...............................ii. F- 19
    hæmorrhage from..............ii. F- 33
    pathology ....ii F- 19
    sloughing fibroids, treatment ii. F- 32
    treatment ....ii. F- 22
      electrical.........................ii. F- 22
      medical ....ii. F- 22
      surgical...........................ii. F- 25
        double oöphorectomy.....ii. F- 27
        enucleation per vaginam ii. F- 28
        laparotomy and the pedicle ii. F- 29
        vaginal hysterectomy...ii. F- 28

THERAPEUSIS.

UTERUS, DISEASES, CERVICAL LACERATIONS (*continued*).

chisel-shaped knives for denud.; Cleveland's glass plug for use after trachelorr., ii. F-12; Goodell's long, shotted, upper, sut. on each side in trachelorr., ii. F-13.

ENDOMETRITIS.

Intra-ut. applica. within 10 d. after menstrua.: iodine; const. galv. curr. Pat. to be kept in bed after intra-ut. applica., from 6 h. to 6 d., ii. F-15. *For remote effect* use iodine or iodized phenol. *For superfic. act.* on abrad. hyperæm. surf. or ulcera. with papill. gran., use iodoform. Iodine prep. for ut. cav. and after dilata.; iodof. for cerv. catar. and eros.; repeat at short interv. if absence of irrita. Pencil of zinc chloride (meth. of Dumontpallier) with antisept. douche until separa. of slough. Iodof. pencils, made with cacao-butter (1 to 7) or gelatin (2 to 8), ii. F-16. Iodof. inject., emuls. with oil or glycer. and sol. of gum tragacanth. Bichloride pencils: ℞ Hydg. bichlor., gr. viij (0.5 grm.); cretæ prep., ʒviss (0.42 grm.); tragacanth. ℥ iij (93.3 grm.); glycerin, aquæ, āā q.s.—M. Sig.: For 50 pencils. If mucosa is hyperæm., swollen, and puffy, with hypersecre., app. of sol. morph. t.i.d. to endometr., contin. for 3 or 4 wks. (not advised by editor). Laminaria-tents soaked in subl. sol. (1 to 1000), and then in iodof. and ether, in ut. cav. Dilata. and curetting, ii. F-17; after curetting, ammon. chloridi, gr. x (0.7 grm.), t. i. d., with ext. ergot fld., 40 drops and nux vom., ii. F-18; Néris-les-Bains, v. D-28.

CHRONIC TUBERCULAR.

Creasote; intra-ut. applica. of iodof.; systemic medication; prohibit sexual intercourse, ii. F-19.

FIBROMATA, HÆMORRHAGE FROM.

Curette, douche to remove *débris*, inject tinct. iodi, ♏ vij to xv (0.5 to 1 grm.), with Braun's syr. removing excess. Pat. in bed, ice-bag over supra-pubic region 24 hrs. If no bad sympt. repeat tinct. iod. in 24 to 48 hrs., stopping if pain; ice-bag as before. Forcible dilatation (to paral. tempor. the cerv. fibres) fol. by curetting and removal of *débris*, ii. F-34. Transfus. ¾ % sal. sol., 1 pint (½ litre), in median cephalic vein, ii. E-20; sol. antipyrin (10 %), v. A-116. Morph. inject., v. A-97.

FIBROMATA—SLOUGHING FIBROIDS.

Superfic. curetting, ii. F-32; vag. enuclea. of submuc. fibr. of body of ut. only when possible at 1 sitting. Large solitary F. of cav. or wall, remove by laparot. or enuclea. Large myomata, partly deliv. through dilated cerv., best remov. by laparot. Extraperiton. treat. of stump after laparot.; sub-muc. or intraperit. myom. not yet extruded into vag., remove by supra-vag. amputa., after

AUTHORS QUOTED.

UTERUS, DISEASES, CARCINOMATA AND SARCOMATA, TREATMENT (*continued*).,
  KRASKE'S SACRAL METHOD OF HYSTERECTOMY—Julius Hochenegg, ii. F-42; Kraske, Gersuny, Hegar, Roux, ii. F-43.
  MEDICAL—J. E. Burton, Marquis, Tornery, ii. F-36.
  ZUCKERKANDL'S METHOD OF HYSTERECTOMY — Zuckerkandl, Frommel, ii. F-42.
CERVICAL LACERATIONS—
  OPERATIVE TREATMENT—Boldt, Duke, Cleveland, ii. F-12; Goodell, ii. F-13.
  PALLIATIVE TREATMENT—Goodell, Mary E. Bates, ii. F-11.
ENDOMETRITIS—
  CHRONIC TUBERCULAR—Jouin, ii. F-18.
  DIAGNOSIS—Schultze, ii. F-13.
  TREATMENT—Mary P. Jacobi, ii. F-14; Dumontpallier, Bock, Hugo Marcus, Polaillon, Blumenthal, Roux and Schnell, ii. F-16; Jacobs, Terrier, Swiecicki, de Lostalot, Terrillon, Liachnitski, A. F. Currier, ii. F-17; Engelmann, R. A. Gibbons, W. L. Taylor, W. W. Taylor, Terrillon, Finkelstein, Alloway, Fraipont, B. F. Baer, Trélat, Chevalier and Rolland, ii. F-18.
FIBROMATA—
  HÆMORRHAGE FROM—Max Runge, iii. F-33; Kaltenbach, Walton, ii. F. 34.
  PATHOLOGY—Rosa H. Engert, Welch, Heuking, Walton, Lawson Tait, ii. F-19; Tait, Wylie, Martin, Cushing, Coe, Liebmann, ii. F-20; G. T. Beatson, Strats, Buron, Klasson, ii. F-21.
  SLOUGHING FIBROIDS, TREATMENT—Ely Van de Warker, ii. F. 32; Fränkel, ii. F-33.
  TREATMENT—
    ELECTRICAL—Apostoli, T. A. Ashby, J. H. Aveling, J. Batuaud, H. R. Bigelow, J. W. Bovee, T. H. Bradford, Black, J. R. Buist, J. E. Burton, P. Bröse, A. B. Carpenter, Clementi, Championnière, Cholmogoroff, W. E. B. Davis, Deletang, Delassus, Durante and Trombetta, George J. Engelmann, Fanques, W. Fischel, G. Gautier, A. H. Goelet, Thomas Keith, La Torre, Lewandowski, McClure, More-Madden, E. Noegerath, E. L. Orleman, W. S. Playfair, Lapthorn Smith, Trélat, W. H. Walling, Tait, Imlach, Chadwick, Wylie, Delétang, ii. F-22; Apostoli, Engelmann, ii. F-24; Inglis Parsons, Lapthorn Smith, Baraduc, Mundé, Theodore Landau, ii. F-25.
    MEDICAL—Lucas-Championnière, ii. F-22.
    SURGICAL—Mundé, ii. F-25; V. Stäheli, Salzer, Edis, Loreta, V. O. Hardon, L. Tait, ii. F-27; W. L. Reid, J. M. Elder, Chaput, Terrillon, W. L. Nichol, G. M. Tuttle, Dempsey, Lindfors, Edis, R. G. Wiener, H. Duret, S. Braun, M. H. Richardson, Fischel, T. J. Barton, Rendu, L. Kleinwächter, F. H. Manley, Amann, Winckel, B. Koteliansky, F. Spaeth, Demons, Chrobak, ii. F-29.
      LAPAROTOMY AND THE PEDICLE—Bantock, ii, F-29; Lawson Tait, Hector Treub, Fritsch, ii. F-30; E. Albert, B. F. Baer, J. M. Baldy, Bantock, Fancourt Barnes, Le Bec, D. Benjamin, F. Berlin, C. Braun, H. T. Byford, Demons, E. C. Dudley, R. Douglass, Dudon, Edis, Fehling, J. A. Fort, H. W. Freund, Gardner, F. A. Glasgow, Göschel, J. R. Goffe, J. Homans, Geo. Halley, Jacobs, F. B. Jessett, J. T. Johnson, M. A. D. Jones, C. C. Lee, More-Madden, Macphatter, E. E. Montgomery, McMordie, J. H Packard, A. Pulido, H. C. Pearce, Pichevin, Polaillon, C. B. Porter, Ruggi, P. A. Rakusa, Sänger, Skene, Terrillon, Tuholske, H. Treub, J. C. Warren, X. O. Werder, D. G. Wilcox, Tait, ii. F-31; Howard Kelly, Price, ii. F-32.

GENERAL INDEX.

Uterus, peritoneum, and pelvic connective tissue, diseases....ii. F- 1

Uvula, morning sickness and hypertrophied..........iv. E- 12

Vaccination..........iv. M- 7
- artificial vaccine lymph..........iv. M- 7
- human and animal vaccine...iv. M- 7
- tuberculosis from animal vaccine..........iv. M- 7

Vagina, diseases..........ii. H- 24
- atresia..........ii. H- 24
- chancroids..........ii. H- 28
- hot-water douches — tampons—glycerin..........ii. H- 28
- irrigation apparatus, Bozeman's..........ii. H- 32
- prolapse..........ii. H- 24
- tumors..........ii. H- 29
  - carcinoma..........ii. H- 29
  - cysts..........ii. H- 29
  - sarcoma..........ii. H- 29
- vaginitis..........ii. H- 25
  - catarrhal..........ii. H- 25
  - diphtheritic..........ii. H- 25
  - gonorrhœal..........ii. H- 26

Vagina and external genitals, diseases ii. H- 1

THERAPEUSIS.

UTERUS, DISEASES, FIBROMATA — SLOUGHING FIBROIDS (*continued*).
complete clos. of abdom. cav.; pedicle extra-periton. Large myom. of body, even with cerv. partly dilat., remove in same way, leaving a good pedicle, ii. F-33.

VAGINA, DISEASES.
ATRESIA.
Incision, drainage when *absence*, plastic op., ii. H-24.
PROLAPSE.
Thure-Brandt meth. massage. Hodge pessary, ii. H-24; plastic op., if floor is gone: extirpa. of ut. and resect. of vag. *if persistent:* Alexander's op.; ventro-fixation; vaginal hysterectomy best op.; remove appendages if possible, ii. H-25.
TUMORS.
Removal if possible, ii. H-29.
VAGINITIS.
CATARRHAL — VULVO-VAGINITIS.
Constit. treat., cleanliness; after acute stage, vag. inject. of cleansing lot.; arg. nitr. sol. (2%) ʒij (8 grm.) inject. gently ev. 2 d.; between times, apply absorb. cott. soaked in bism. and glycerin to pts.; if ureth. and blad. involved, give mild alk. or simple emoll. diuretics, ii. H-26; hydrastis inject., v. A-66.
GONORRHŒAL.
Avoid infection, linen, towels, etc.: treat. same as for catarrhal, ii. H-27; curette urethra and ut., fol. by app. of arg. nitr., ii. H-28; creolin sol., v. A-49; hydrastis inject., v. A-66.

VARIOLA.
BAUDON'S TREATMENT.
Confluent form: ℞ Acid salicyl., gr. cliv (10.0 grm.) vaselin., ℥vii½ (225.0 grm.)—M. Sig.: Apply to face, limbs, and thorax; then use ℞ Ac. salicyl., ʒiiss (10.0 grm.); magn. silicat. ℥viij ʒss (250.0 grm.)—M. Quin. gr. iv (0.25 grm.) t.i.d. Borated gargles. Milk *ad. lib.*, i. H-67; Lebœuf's "coal-tar saponine" (liq. carbonis deterg. resembles it), i. H-68.
GRANDMAISON'S TREATMENT. IN HÆMORRHAGIC FORM.
Ferri perchlor. [sol.].gtt. xxx in 24 hrs. Ergot, gr. xxx to xlv (2 to 3 grm.). Tannin. Yvon's ergotin. hypod.; alcohol, with or without quin.; ether in syr. or hypod.; oxygen inhala. and baths, to absorb 2 to 3 pints (1 to 1½ litres) of oxygen; op., chloral, brom., *for excitement. In collapse,* ammon. carb., musk. *Severe cases,* lukewarm baths. *Nerv. excitation or high temp.,* cool baths; mustard-baths *to excite skin;* pomades of ac. bor. or salol on face and hands; antisep. washes to body. Dur. convalesc., ac. boric. baths ev. 2 or 3 d., i. H-67.
HARTGE'S TREATMENT.
In mild cases, cold compr. on skin, cov. expos. port. with "Weidenbaum's pomade" (merc. oint., 1; pot. soap, 2; glycer., 4); do not salivate by too freq. use. *In severe cases,* tepid baths, 1 or 2 t. d., i. H-66.

AUTHORS QUOTED.

UTERUS, PERITONEUM AND PELVIC TISSUE, DISEASES—Paul F. Mundé, Brooks, H. Wells, ii. F-1.

UVULA, MORNING SICKNESS AND HYPERTROPHIED—Dabney, iv. E-12.

VACCINATION—
- ARTIFICIAL VACCINE-LYMPH — Woytkoff, iv. M-7.
- HUMAN AND ANIMAL VACCINE—H. Barbier, anon., iv. M-7.
- TUBERCULOSIS FROM ANIMAL VACCINE—C. Morocco, iv. M-7.

VAGINA, DISEASES—
- ATRESIA—Fuld, Spaeth, Picque, ii. H-24.
- CHANCROIDS—A. W. Stein, Taylor, ii. H-28.
- HOT-WATER DOUCHES—TAMPONS—GLYCERIN—Crowell, Hermann, ii. H-28.
- IRRIGATION APPARATUS—N. G. Bozeman, ii. H-32.
- PROLAPSE—Smyly, Thure-Brandt, Hodge, ii. H-24; Asch, Alexander, Gebhardt, ii. H-25.
- TUMORS—
  - CARCINOMA — Arnold, Küstner, Arnold, Hawley, ii. H-29.
  - CYSTS—W. Thorn, von Preuschen, Veit, Kaltenbach, Klebs, Morel Lavallée, ii. H-29; Poupinel, ii. H-30.
  - SARCOMA — Rosthorn, Kolisko, Billroth, Weinlechner, ii. A-29.
- VAGINITIS—Currier, Vogel, ii. H-25; Currier, Neisser, ii. H-26; Spaeth, Suchard, Halfield, von Dusch, Horand, Di Bella and Ingria, Eraud, ii. H-27.

VAGINA AND EXTERNAL GENITALS, DISEASES—W. H. Parish, J. M. Baldy, ii. H-1.

VARIOLA—
- ASSOCIATION—Arnozan, i. H-66.
- ETIOLOGY—May, Hoffman, i. H-65.
- TREATMENT—Lewentaner, Hartge, Weidenbaum, i. H-66; Jacobi, Grandmaison, Brocq, Baudon, i. H-67; Muselli, Sellwood, Ory, i. H-68; G. Somma, A. Bianchi, i. H-69.

VASELINE, USES—J. Roussel, V. Krebs, v. A-137.

VEINS, DISEASES AND INJURIES—
- ARTERIO-VENOUS ANEURISM — Goodheart, iii. I-15.
- FAT EMBOLISM—Grube, iii. I-16.

GENERAL INDEX.

Variola.......................................i. H- 65
  association with other infectious diseases..............................i. H- 66
  epidemics of.........................iv. M- 7
  etiology...................................i. H- 65
  treatment...............................i. H- 66

Vaseline, uses..............................v. A-137

Veins, diseases and injuries.........iii. I- 14
  arterio-venous aneurism.........iii. I- 15
  fat embolism..........................iii. I- 16
  femoral vein, wound.............iii. I- 15
  hæmorrhage..........................iii. I- 14
  injection of salt solution..........v. I- 45
  multiple thrombosis..............iii. I- 15
  saphena (internal), varix.........iii. I- 15
  varicose veins, treatment.......iii. I- 16
  varix of superficial abdominal iii. I- 15

Veratrum viride, therapeutics and toxicology......................v. A-137

Viburnum prunifolium, therapeutic uses...............................v. A-138

Vidal's "red plaster".................iv. A- 51

Virga latifolia (diuretic).............v. A-138

Viscera, anatomy of......................v. J- 9

Vital statistics............................v. E- 5
  density of population.............v. E- 17
  overcrowding.........................v. E- 18
  overpopulation......................v. E- 12
  race degeneration...................v. E- 15
  rural depopulation.................v. E- 15

Vomiting, nervous.........................i. C- 12
  of pregnancy (see Pregnancy).ii. I- 8
  periodic.................................i. C- 12

Vulva, diseases...........................ii. H- 3
  elephantiasis ....ii. H- 7
  inguinal canal, cysts............ii. H- 12

THERAPEUSIS.

VARIOLA (*continued*).

JACOBI'S TREATMENT.

Early vaccin. and revaccin. betw. 4th to 6th yrs. In child., freq. washing with cool or tepid water; ether spray over sore pts. *Superfic. and offens. sores*, use thymol, ac. salicyl. or iodof. *Œdema laryngis or laryngitis*, intuba. or tracheot. After *fever* disapp., bathe ev. 1 or 2 d. with inunct. of fat until complete desquam. i. H-67.

LEWENTANER'S TREATMENT.

Paste of ac. carbol. (3 %) in starch and ol. amygd. dulc, on linen mask, to face, neck, and head. Trunk and extrem. anoint with ℞ Ac. salicyl., 3 p.; amyli pur., 30 p.; glycerin., 70 p.—M. Also for loc. effect in pharynx, use ℞ Ol. amygd. dulc., 15 p.; syr. aurant. flor., 30 p.; aq. laurocer., 10 p.; quin. hydrochlor., 0.3 p.; solve in ac. hydrochlor. q. s. ad ft. emuls. Sig.: Instill into throat while child is recumb. several drops, ev. ¼ to ½ hr., i. H-66.

ORY'S TREATMENT.

Confluent form, cocain., gr. 1-32 (0.002 grm.), in pastil.; sol. cocain. mur. (5 %), gtt. x 4 t. d.; also *in hæmorrhagic form*, to child, gtt. viij 4 t. d. of a 1 % sol., i. H-68.

PETRESCO'S TREATMENT.

Bichloride of merc. int. and sulphur oint. ext., v. A-58.

SELLWOOD'S TREATMENT.

Quin., gr. iij (0.20 grm.), t. i. d., throughout dis. *When erup. is estab.*, use ℞ Ungt. hg. nitr., vaselin., āā p. æq. —M. S.: Use over whole body ev. few hrs., not allow. skin to bec. dry and harsh. Aconite for fev.; light food and fruit diet: Stim. only for shock or great prostration, i. H-68.

SOMMA'S TREATMENT.

Aseptic body, sheets and blankets, air and walls of sick room, i. H-69.

VEINS, DISEASES AND INJURIES.

FEMORAL WOUNDS.

Tampon of iodof. gauze: if this fail, suture or lat. liga. of wound, or, if necess., lig. of ven. trunk with compress. of artery; if necess. to tie artery, tie below origin of the profunda., iii. I-15.

THROMBOSIS.

Diet, exercise, peat-baths, iii. I-15.

VARICOSE VEINS.

℞ Pepsin, gr. l (3.2 grm.); lanolin, ℥ss (15.4 grm.)—M. ft. ungt.; apply Esmarch tube above vein and inject ac. carbol., ♏ss (0.03 grm.) into vein; best in clustering varices. Liq. ferri perchlor., gtt. iv; inject., with fig.-of-8 suture and pin to occlude vein above and below excision (total); retrenching skin, iii. I-16; barium chloride, v. A-21; hamamelis, v. A-56; tinct. rhus tox., half-drop dose with cascara cordial, v. A-117.

VERATRUM VIRIDE, TOXIC EFFECTS.

Blister to epigastr.; frictions to extremities; ammon. carb. int.; inhala. amyl nitrite, v. A-138.

VOMITING.

NERVOUS.

Opium, i. C-12.

AUTHORS QUOTED.

VEINS, DISEASES AND INJURIES (*continued*).
  FEMORAL VEIN—Jaboulay and Condamin, Maubrac, Dudon, Richet, Turner, iii. I-15.
  HÆMORRHAGE—Rockwell, Bradford, Moussous, iii. I-14; Deaver, iii. I-15.
  INJECTION OF SALT-SOLUTION — ANNUAL 1889, Dastre and Loye, v. I-45.
  MULTIPLE THROMBOSIS—Wolfner, iii. I-15.
  SAPHENA (INTERNAL VARIX)—Jeanselme, iii. I-15.
  VARICOSE VEINS, TREATMENT — Broca, Douglass, Godwin, Patterson, Madelung, Boennecken, Bennett, McKay, Lang, McLaren, iii. I-16.
  VARIX OF SUPERFICIAL ABDOMINAL—Suckling, iii. I-15.

VERATRUM VIRIDE, THERAPEUTICS AND TOXICOLOGY—G. Meillère, Ch. Liégeois, Sée, Guyot, Huchard, Carl Semelroth, v. A-137; P. H. Brothers, Lewis Pedigo, v. A-138.

VIBURNUM PRUNIFOLIUM, THERAPEUTIC USES—William C. Wood, v. A-138.

VIRGA LATIFOLIA (DIURETIC) — Mascarel, L. Roché, Duché, v. A-138.

VITAL STATISTICS—
  DENSITY OF POPULATION—Anon., Billings, v. E-17.
  OVERCROWDING — J. M. Anders, Rüs, v. E-18; Frederick Greenwood, anon., Stallard, v. E-19; Bertillon, Arsène, Dumont, v. E-20.
  OVERPOPULATION — W. T. Green, Mrs. McDonald, anon., Frank P. Foster, v. E-13; anon., v. E-14.
  RACE DEGENERATION — Beddoe, v. E-15; British Admiralty, Sir Edmund Commerell, Sir T. Graham Balfour, Sir T. Crawford, Pettihan, v. E-16.
  RURAL DEPOPULATION — Anon., C. N. Gwynne, v. E-15.

VOMITING, NERVOUS—Garland, i. C-12.
  PERIODIC—Boas, Leyden, i. C-12.

VULVA, DISEASES—
  ELEPHANTIASIS—Alexander, ii. H-7; Hyde, ii. H-11.
  INGUINAL CANAL, CYSTS—Thiéry, Broca, ii. H-12.
  INJURIES—
    HÆMATOMA—Winckel, Scanzoni, Wright, Barnes, Matthews Duncan, Page, Parish and Baldy, Olenin, M. P. Root, ii. H-5; Flinterman, Drzymalik, ii. H-6.
    RECTO-VAGINAL SEPTUM, LACERATION—Springsfeld, ii. H-6.
  KRAUROSIS VULVÆ—Ohmann-Dumesnil, Briesky, Janowsky, ii. H-3.
  LABIA, CYSTS—B. B. Browne, J. R. Uhler, ii. H-6.
    HERNIA — Henry Morris, Monteuuis, ii. H-12.
  LUPUS—G. S. Case, Lewers, ii. H-7; William Duncan, ii. H-8; Hyde, ii. H-11.

GENERAL INDEX.

Vulva, Diseases (*continued*).
  injuries....................ii. H- 5
    hæmatoma....................ii. H- 5
  Recto-vaginal septum, laceration....................ii. H- 6
  kraurosis vulvæ....................ii. H- 3
  labia, cysts....................ii. H- 6
    hernia....................ii. H- 12
  lupus....................ii. H- 7
  lupus vulgaris....................ii. H- 10
  meatus urinarius, angioma....ii. H- 12
  noma....................ii. H- 3
  round ligament, hydrocele.....ii. H- 12
  tumors....................ii. H- 10
    epithelioma, primary.........ii. H- 8
    fibroma....................ii. H- 7
    sarcoma....................ii. H- 8
    syphiloma....................ii. H- 9
    tuberculous....................ii. H- 11
  vulvitis....................ii. H- 13
  vulvo-vaginal glands....................ii. H- 4
    cyst....................ii. H- 4
    vulvo-vaginitis....................ii. H- 4
Water, hygiene of....................v. F- 11
  analysis....................v. F- 11
  disinfection of springs............v. F- 11
  filters....................v. F- 12
  germs, vitality in nutriment..v. F- 13
  lead contamination................v. F- 14
  pure water and health............v. F- 15
  purification....................v. F- 13
Water-gas, toxic effects................v. A-138
Weil's disease....................i. H- 78
Whitlow, treatment....................iv. A- 58
Wild parsnip, toxic effects...........v. A-138
Winckel's disease, in newborn.....ii. L- 4

THERAPEUSIS.

VOMITING (*continued*).
  OF PREGNANCY (See Pregnancy).
  PERIODIC.
    Treat. nerv. syst.; opium, i. C-12.
VULVA, DISEASES.
  INGUINAL CANAL, CYSTS.
    Removal, ii. H-12.
  INJURIES—HÆMATOMA.
    Puerperal: If obstructing labor, threaten. sloughs, or will not absorb, incise freely, empty clots, drain, keep clean, ii. H-5. *Non-puerperal:* Incision and drainage, if large; if small, cold and pressure, ii. H-5.
  LABIA—CYSTS.
    Excise part of wall, inject iodine, enucleation, ii. H-6.
    HERNIA.
    Radical op.; reduction and bandage, ii. H-12.
  LUPUS.
    Exsection, ii. H-8.
  MEATUS URINARIUS, ANGIOMA.
    Abscission, ii. H-12.
  NOMA.
    Laxative, local cleanliness, antisept. lotions; iron. quin., wine and nour. food, iii. H-4.
  ROUND LIGAMENT, HYDROCELE.
    Cyst shelled out, surf. caut.; excis., antisept. irriga, drainage, ii. H-13.
  TUMORS.
    EPITHELIOMA, PRIMARY.
    Excision, ii. H-8; if inguinal glands involv, removed, ii. H-9.
    FIBROMA.
    Removal, ii. H-6.
    SARCOMA.
    Arsenic, hypod. in full and incr. doses; excision, ii. H-8.
  VULVO-VAGINAL GLANDS.
    CYST.
    Extirpation; free incis. and drain., ii. H-4.
    VULVO-VAGINITIS.
    Exsection of glands, ii. H-4.
    See Vaginitis, ii. H-26.
WATER-GAS, TOXIC EFFECTS.
  Transfusion of milk, ℥x (295.70 c.cm.) v. A-138.
WHITLOW.
  Abortive: Moisten slightly painful pt. and around it, then rub over this argent. nitr. fus., iv. A-58.
WILD PARSNIP, TOXIC EFFECTS.
  Emetics, enemata, opium, prolong, etherisa., v. A-138.
WOUNDS.
  Doub. cyan. merc. and zinc, with starch; aluminum sulphite; kresols; sozoiodol prep.; Biniod of merc.; merc. biniod. with sod. or pot. iod., iii. Q-6; sod. silicofluoride (Salufer). Beta-naphthol, campho-phénique, terebene, turpentine, copaiba, styrone, iii. Q-7; essence canella, chlorof.-vapor, formaldehyde vapor, iodoform, iodof. gauze, iii. Q-8; creolin, creoline gauze and sol. (2% to 5%), iii. Q-9; ac. boric and oil cassia, salol. Peatmoss or "vegetable felt." Sugar-dressing, sublimate gauze and sol., (1–3000 to 1–6000); Anhyd. lanolin with sub. sol. (from 1–1000 to 1–5000); eq. pts. of zinc oxide and water with 5% of zinc chloride—M. Closed glass coverings, iii. Q-11; dry dressings, pulv. ac. borac. freely, iii. Q-12; wood-bandages, of pine or fir, iii.

AUTHORS QUOTED.

VULVA, DISEASES (*continued*).
  LUPUS VULGARIS—Huguiers, ii. H-10; Hebra, Hyde, Peckham, ii. H-11.
  MEATUS URINARIUS, ANGIOMA—Petit, ii. H-12.
  NOMA—Queely, ii. H-3; Schimmelbusch, ii. H-4.
  ROUND LIGAMENT, HYDROCELE—Smital, Wölfler, ii. H-12.
  TUMORS—
    EPITHELIOMA, PRIMARY—Mundé, A. Ballenghein, Maurel, Lancial, Billroth, Rupprecht, Volkmann, Verneuil, ii. H-9.
    FIBROMA—G. W. Johnston, ii. H-6; Rutherford, Fenwick, ii. H-7.
    SARCOMA—R. W. Taylor, ii. H-8; Hyde, ii. H-11.
    SYPHILOMA—J. W. Hyde, Alexander, Lewer, ii. H-9.
    TUBERCULOUS—Hyde, Zweifel, Chiari, ii. H-11.
  VULVITIS—Berger, Bouchert, Holmes, Pousson, ii. H-13.
  VULVO-VAGINAL GLANDS—CYSTS—Bonnet, ii. H-4.
    VULVO-VAGINITIS—Róna, Chunn, B. B. Browne, ii. H-4.
WATER, HYGIENE OF—
  ANALYSIS—Penna. State Bd. of Health, I. Strauss and Dubarry, Meade Bolton, Kraus. Koch, v. F-11.
  DISINFECTION OF SPRINGS—Carl Fraenkel, v. F-11.
  FILTERS—G. Biron, Vanale and Brisse, Chamberland, L. Pasteur, L. Dor, G. F. Cadogan-Masterman, v. F-12.
  GERMS. VITALITY IN NUTRIMENT—L. Heim, v. F-13.
  LEAD CONTAMINATION—A. Swann, v. F-14; Sinclair White, G. Walter Steeves, v. F-15.
  PURE WATER AND HEALTH—Drasche, v. F-15.
  PURIFICATION—Pasteur, Chamberland, Charles G. Currier, v. F-13.
WATER-GAS, TOXIC EFFECTS—D. A. Cleaveland, v. B-138.
WEIL'S DISEASE—Fraenkel, i. H-78; Weil, Baginsky, Goldschmidt. Weil, Merkel, Aufrecht, Wagner, Roth, Matthieu, Fiedler. Haas, Pfuhl, Hueber, Nauwerck, Brodowski and Dunin, Fraenkel, i. H-79: F. Vierordt, Lemoine, Weil, Rendu, Miller, Le Flaive, Goldenhorn, Benech, Stirl, Perret, Baire, Brodowski and Dunin, Winnscheid, Chéron, Weiss, Jennings, Charcot, i. H-80.
WHITLOW—
  TREATMENT—Gaucher, iv. A-58.
WILD PARSNIP, TOXIC EFFECTS—G. S. Phillips, v. A-138.
WINCKEL'S DISEASE—
  IN NEWBORN—Strelitz, Bigelow, Winckel, Bar and Grand 'Homme, Pollack and Laroyenne, Parrot, ii. L-4.

GENERAL INDEX.

Wines, bouquet and ferments........v. F- 21

Wood-bandages..........................iii. Q- 14

Wormwood, toxic effects..............v. A-138

Xanthoma....................................iv. A- 42
  diabeticorum.........................iv. A- 42
  multiplex planum tuberosum.iv. A- 42
  treatment...............................iv. A- 43
Xanthoxylum senegalense, alkaloids of.......................................v. A-138
Xeroderma pigmentosum et atrophicum...................................iv. A- 33
Xerostomia, or dry mouth ....i. C- 1

Yellow fever..................................i. H- 69
  diagnosis and treatment.........i. H- 71
  epidemics of..........................iv. M- 1
  etiology..................................i. H- 69
  inoculation.............................i. H- 70

Zoöplastic grafts ....iii. Q- 33

THERAPEUSIS.

Wounds (*continued*).
  Q-14; skin-grafts, iii. G-32; antisep. gauze steeped in sol. ammon. chloride (1 to 8) to contused w., v. A-12; creolin prepara., v. A-47; inuline to stimul. gran. and atonic scars, v. A-81; sterilize with sol. ac. carbol. (2½ %), dress with salol, v. A-122.

Xanthoma.
  Excis. by knife, sublimate sol. (10 %), iv. A-43.

Xerostomia, or Dry Mouth.
  Treat. unsatisfac. Jaborandi [ext. fld., ♏ xv to lx (1.0 to 4.0 grm.)], ; pilocarpine [mur., gr. 1-64 to ½ (0.001 to 0.03 grm.)], i. C-1; potass. iod. [gr. iv to xv (0.25 to 1.0 grm)]; glycerin, app. loc., i. C-2.

Yellow Fever.
 Prophylaxis.
  Inoculation, i H-70.
 Gibier's Treatment.
  Evac. and disinfect. of intest. with sublimate, naphthaline or tannic acid, i. H-69.
 Maxwell's Treatment.
  (1) Hot mustard foot-bath; (2) stimulating diaphor.; (3) purge of oil ricin.; (4) quiet and diet. If remitt. fev. is suspect., give quin. and magn. citrat., orange-tea and sod. bicarb. and spts. aeth. nitr., i. H-70.
 Mitchell's Treatment.
  ℞ Sod. bicarb., ʒiv (16 grm.); hydrarg. chlor. corr., gr. ss (0.03 grm.); aq. pur., Oij (1 litre) — M. ℥j ʒvj (50 grm.), ev. hr., ice-cold, i. H-74. After 8 to 10 d., stop sod. bicarb., give stim.; combat adynamia and hæmorrhages, etc., i. H-74.
 Nelson's Treatment.
  Quin., gr. xv (1 grm.); ac. sulph. dil., q. s.; sod. sulphate, ℥ss (15 grm.); tinct. car. dam. co., q.s.—M. If after 2 d. temp. is high (100° F. 37.77° C.), the case is one of Y. F. Later, ac. phosp. mixt., largely dil., ev. 1 or 2 hrs.; vapor baths, hot lemonade, or orange-leaf tea; iced milk, beef-broth in sm. quant. freq., i. H-72.
 Sternberg's Treatment.
  ℞ Sod. bicarb., gr. cl (10 grm.); hydrarg. chlor. corr., gr 3-10 (0.02 grm.); aq.-pur., Oij (1 litre)—M. ℥j ʒvj (50 grm.), ev. hr., ice-cold, i. H-72.

AUTHORS QUOTED.

Wines, Bouquet and Ferments—Rammier, v. F-21.

Wood-bandages—Wahltuch, iii. Q-14.

Wormwood, Toxic Effects—Bernard Robinson, v. A-138.

Xanthoma—
  Diabeticorum—Robinson, iv. A-42.
  Multiplex Planum Tuberosum—Lehzen and Knauss, iv. A-42.
  Treatment — Stern, Kaposi, Besnier, iv. A-43.
Xanthoxylum Senegalense, Alkaloids of—Giacosa and Soave, v. A-138.
Xeroderma Pigmentosum et Atrophicum—McCall Anderson, R. W. Taylor, iv. A-33.
Xerostomia, or Dry Mouth—Hutchinson, Seifert, Hadden, Hadden and Morgan, Butlin and Seifert, i. C-1.

Yellow Fever—
  Diagnosis and Treatment—Stub, Cochran, Nelson, i. H-71; Sternberg, Cross, i. H-72; Sollace Mitchell, A. J. Wakefield, Sternberg, i. H-73; Gibier, Mitchell, Martinez, Sternberg, i. H-74.
  Epidemics of—Fla. Legislature, iv. M-1; Paul Gibier, Ferreira, Amadeo, John Guitéras, George M. Sternberg, Freire, Carmona y Valle, Annual 1889, iv. M-2.
  Etiology — Frank S. Billings, Sternberg, Freire and Gibier, La Cerda and Babes, M'Whorter, Maxwell, Surg.-Genl. Hamilton, i. H-69; Jno. P. Wall, i. H-70.
  Inoculation—Gaston, Freire, Sternberg, Barrata, i. H-70.

DEPARTMENT OF MEDICAL POLYTECHNICS AND SANATORY APPLIANCES.

PARKE, DAVIS & COMPANY,

Detroit and New York,

Offer a large variety of eligible Antiseptics, Anodynes, and Digestives to the notice of the Readers of the ANNUAL.

THE antiseptic and sedative treatment of intestinal disorders is a deservedly popular one, and in this class of remedies we would remind physicians of the Antiseptic Yellow Oxide of Mercury Tablets, which have proved of so much service in septic forms of dyspepsia, and prophylactic against diarrhœa and dysentery. Samples mailed on request.

A preparation of much value as a sedative, anodyne, and antispasmodic in disturbances of the digestive tract, incident to summer, is Chloranodyne. The formula is an improvement upon the Chlorodyne of J. Collis Browne, M.R.C.S.L., which has long been established in favor abroad.

The reputation of our Pepsin products for purity and digestive activity, as compared with others made, has been thoroughly established. In digestive disturbances and for preparing predigested foods for infants and invalids, our pepsin and pancreatin preparations will be found most convenient and reliable. We may mention the following forms in which we supply these agents:—

Pepsinum Purum in Lamellis, Pepsinum Purum Pulvis, Saccharated Pepsin (U. S. P.), Lactated Pepsin. Glycerole Pepsin concentrated, Pepsin Cordial, Liquid Pepsin (U. S. P.), Lime Juice and Pepsin. Digestive Tablets, Lactated Pepsin Tablets, Pepsin and Bismuth Tablets, Pepsinum Purum Tablets (3 grs., sugar-coated), Peptonizing Tablets, Pancreatin, Pure, Saccharated, and Pancreatin Liquid Concentrated.

All information desired by physicians as to our Pepsin and Pancreatin products, preparing predigested foods, our general line of standard medicinal preparations, pharmaceutical specialties, and latest therapeutic novelties and improvements in methods of medication, will be promptly furnished on request.

NEW REMEDIES.—Among the latest Therapeutic agents are

HYDRASTININE AND HYSTERIONICA.

HYDRASTININE HYDROCHLORATE is an oxidation product of Hydrastine, white alkaloid of Golden Seal, which was prepared by us in order to afford opportunities for physiological investigation in European laboratories, and has been investigated at the laboratories connected with the Universities of Dorpat and Berlin.

The results of the study of this medicinal agent would indicate that it is likely to supersede Ergot in the control of hæmorrhage and be of especial service in uterine hæmorrhage. The alkaloid, or base, being sparingly soluble, and, moreover, prone to decomposition when in solution, we have given preference to the hydrochlorate as possessing the desirable elements of stability and solubility in aqueous fluids.

In the *New York Medical Journal* (March 22, 1890), Dr. Edmund Falk, of Berlin, gives an account of this new alkaloid, $C_{11}H_{13}NO_3$, which is formed, along with opianic acid, by gently heating a mixture of hydrastine and nitric acid and precipitating with an alkali. Dr. Falk has made repeated experiments with hydrastinine, and suggests it as a remedy in the treatment of uterine hæmorrhages as being much more prompt and sustained in its action than ergotine.

HYSTERIONICA BAYLAHUEN, a native of Chili, has been brought forward (*Bulletin Général de Thèrapeutique*) by Dr. Baillé, and also by Carvallo, of Valparaiso, as a remedy of very considerable value in gastro-intestinal troubles, such as dysentery, colitis, and flatulence from intestinal dyspepsia.

We have pleasure in informing physicians that we have obtained genuine supplies of this drug, and will furnish literature descriptive of it and samples for investigation on request.

☞ (*See also* VOL. I, page 3, *same Department.*)

PHYSICIANS and others contemplating the purchase of carpetings for offices or residences will find it specially to their advantage to call upon the firm of

IVINS, DIETZ & MAGEE,

Manufacturers of FINE CARPETINGS.

Their extensive manufacturing plant is located on Lehigh Avenue, this city, and accords facilities which enable them to serve their patrons at their store,

1217 Market Street, Philadelphia, Pa.,

at such inducements to purchasers as only the producer can present.

Besides being manufacturers, they handle largely all the most desirable lines of carpetings from the most celebrated mills at home and abroad, and are in a position to meet all the exigencies of their trade; and should special designs or shades of color to blend with ceiling or upholstery decorations be desired, they can command the looms of the world for their purpose.

The variety in their store is very complete, and embraces the newest designs in Axminsters, Wiltons, Velvets, Moquettes, Brussels, Tapestries, Ingrains, Art Squares, Rugs, etc., and it will repay those who desire to have the "floor effect" in perfect harmony with the surrounding decorations to call when on their tour of inspection. In the Matting Department is displayed all the substantial varieties of this clean and cool furnishing. The large assortment of patterns in Linoleums, Oil Cloths, etc., will enable any one to make a judicious and satisfactory selection.

With all the other advantages offered to a tasteful and comfortable furnishing, the economic features are well worth considering, the prices being absolutely lower than those asked for much inferior goods.

The furnishings of Sanitarium Resorts, Hotels, Medical Colleges, Public and Private Hospitals, and other public institutions are specially solicited, and quotations will be furnished with a view to securing contracts.

Polite and satisfactory attention is always accorded to those who will favor this enterprising house by a visit to their store, where the beautiful goods of their manufacture are exposed to view, and must be seen to be fully appreciated.

LANDRETHS' AMERICAN GARDEN SEEDS

THIS house, DAVID LANDRETH & SONS, Philadelphia, founded in 1784, is the oldest in America. From the date of its establishment to the present time the proprietors have been *Practical Seedsmen*, giving personal attention to the cultivation of their own grounds. They offer seeds grown from Pedigree Stock, carefully selected, which carry with them, in view of the above facts, the strongest possible assurance of good quality.

VEGETABLE OR KITCHEN GARDEN SEEDS,

all old standard varieties, including many specialties, and all *novelties* of merit.

FLOWER SEEDS.—A very complete assortment, in which may be found "old-fashioned" favorites as well as the finest strains of florists' flowers.

BULBOUS ROOTS FOR AUTUMN AND SPRING PLANTING.

AGRICULTURAL OR FARM SEEDS.—Mangel-wurzels and Sugar-Beets, Ruta-Bagas or Swedes and other Turnips, Carrots, Parsnips for cattle-feeding. Improved varieties of Corn, Wheat, Oats, and Sorghum; Seed-Potatoes.

GRASS AND CLOVER SEEDS.—All approved varieties for permanent pastures and lawns,—separate, or in mixtures to suit particular soils.

AGRICULTURAL AND HORTICULTURAL IMPLEMENTS AND TOOLS. ALL GARDEN AND FARM APPLIANCES, FERTILIZERS, AND INSECTICIDES.

The stock in all lines is complete. Medical men interested in rural affairs would do well to send for Catalogue · mailed free on application.

Address,

D. LANDRETH & SONS,
Seed Farmers and Merchants,
21 and 23 S. SIXTH ST.,
PHILADELPHIA, PA.

CHARLES H. HOWELL & CO.,

Manufacturers of Pure Colors and

AJAX READY-MIXED PAINT,

PHILADELPHIA: NEW YORK:
210 Race Street. **99 Maiden Lane.**

Ajax is a model paint, always reliable, gives complete satisfaction, and is popular wherever known.

Our colors in oil and japan had already an established position at the front when we began to manufacture Ajax Paint. We determined that Ajax Ready-Mixed Paint should also be first-class, a credit to the makers.

We have improved it, as wide experience has taught how, and it has won an excellent reputation. We believe it costs more to make than any other. Every ingredient is the best of its kind. That is why our customers rarely have cause for dissatisfaction. They all recommend Ajax Paint, and are the best salesmen we can obtain.

The merits of Ajax Paint so completely satisfy the buyer that there is no room for fault-finding.

Marine Paints.—The manufacture of durable paints for the protection and preservation of iron and wooden vessels has occupied the attention of many of the most prominent manufacturers of paint throughout the world. In this country Copper Paints for the bottoms of wooden vessels have reached a high state of perfection. One of the most meritorious is the Hatteras Copper Paint (made by C. H. Howell & Co., 99 Maiden Lane, New York), which has had for many years the severest tests to which such a compound can be exposed, and always with triumphant success. The Marine Black Paint, introduced by Howell & Co. many years ago, has replaced Lamp-Black and Boiled Oil, which seemed to be the best for the sides and bends of vessels up to the time when Howell's Marine Black was invented. The latter has been generally adopted by the better class of vessels, whose masters realize that a vessel protected with the best paint not only lasts longer and looks better, but in dull times charters quicker than one that looks shabby and run down. The Howell Water-Line Paint not only serves for the water-lines of wooden vessels, but has been used with marked success for the bottoms of iron ships. All of the Marine Paint Specialties produced by this house have been in response to a demand which existed, and which they have filled after careful and patient experiment, in which they have had the co-operation of some of the best known vessel masters. To this fact can be largely attributed the adaptability of the goods for the purposes intended. At a time when the market is flooded with cheap, unreliable paints and oils, it is a pleasure to direct attention to a line of goods so deservedly popular and thoroughly reliable.—*New York Marine Register.*

We are strictly first hands, having uncommon facilities for making colors of uniform quality and fineness. We manufacture almost everything in the paint business. Kindly ask our prices before buying elsewhere, and remember that Ajax Paint is always reliable.

THE LUBURG
Manufacturing Co.,

145 NORTH EIGHTH ST.,

PHILADELPHIA,

Announce that their line of INVALID GOODS, such as

ROLLING CHAIRS, COMMODES, CARRYING CHAIRS, BED TRAYS,

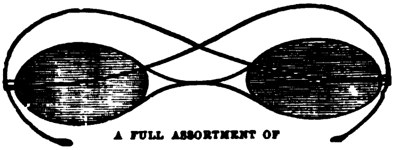
BED RESTS, Sanitary Rubber Goods, and Appliances for Invalids are very large.

THE WONDERFUL LUBURG CHAIR, with 50 changes; combining 5 articles of furniture in one. Invalids' supplies and wheel chairs. Wheel chairs to hire. Special free delivery.

100 STYLES BABY COACHES. Automatic brake on all coaches, free.

We retail at the lowest wholesale factory prices, and ship goods to be paid for on delivery. Send stamp for Catalogue. Name goods desired.

HUBER & WEBER,
Manufacturing Opticians,



A FULL ASSORTMENT OF

Eye-Glasses, Spectacles, Opera-Glasses, Thermometers, etc.

LENSES OF ALL KINDS MADE TO ORDER.

26 North Thirteenth St., Philad'a, Pa.

Careful attention paid to Oculists' Prescriptions. Repairing Promptly Done.

J. E. BISHOP,

PHOTOGRAPHER,

905 Pennsylvania Avenue,

WASHINGTON, D. C.,

Calls the attention of the readers of the ANNUAL to the fact that he gives special attention to reproducing old pictures, maps, charts, and drawings of every description. Correspondence solicited.

TRYMBY HUNT & CO.,

1219 & 1221 Market Street, Philadelphia.

MANUFACTURERS OF

Furniture & Interior Woodwork

IMPORTERS OF

Curtains, Upholstery Goods

AND

INTERIOR DECORATIONS.

Designs and Estimates furnished for the Complete Furnishing of a Whole House or Single Apartment.

We make a SPECIALTY of NEW and NOVEL designs in Wood Mantels, Wainscoting, and all Interior Woodwork.

THE HARTSFELD
Furnace and Refining Co.,

Oldest Manufacturers of Pure Aluminum in America.
PRICES BELOW COMPETITION.
Office and Works—NEWPORT, KY.

In Operation in this Country since 1886.

Agents wanted for Aluminum, the new metal, which will no doubt take the place of gold and silver, and perhaps replace our future coin. Its lightness, brilliancy, non-tarnishing lustre, and durability is admitted by more than fifty million people, especially for jewelry, ornamental and household utilities; its demand is now enormous, and it will doubtless find many applications in medical science.

CHAS. L. HARTSFELD,
Pres't and Gen'l Manager.

NOTES, BILLS, BLANKS,
◄ OF EVERY DERCRIPTION. ►

PROFESSIONAL
▲ MEN'S STATIONERY. ▲

WEDDING INVITATIONS AND SOCIETY WORK.

T. A BRADLEY & CO.,
17 N. THIRTEENTH ST.,
PHILA PA

INDEX TO DEPARTMENT OF MEDICAL POLYTECHNICS AND SANATORY SUPPLIES.

GENERAL INDEX.

Agricultural Supplies (Landreth).....v. 5
Ajax Paint (Howell & Co.)..................v. 6
Aluminum..v. 7
Announcement.......................................i. 1
Anti-constipation Tablets.....................i. 7
Antiseptic Case (Kern's)....................iii. 9
Antiseptic Pills (Warner).....................i. 5
Antiseptics (P., D. & Co.)....................v. 3
Arthrosia Pills (Warner).......................i. 5
Atlantic City (Reading R.R.)..............ii. 15

Barrett, John A., Battery Co..............ii. 14
Barry, John (Thermometer)..............iii. 10
Batteries (Barrett's)...........................ii. 14
Bed-trays (Luburg Mfg. Co.)..............v. 7
Beef-food..ii. 6
Bicycling..iii. 11
Bishop, J. E. (Photographs)...............v. 7
Blakiston, P., Son & Co.....................iii. 5
Bland's Tablets (Mulford's)..................i. 7
Bookbinding....................................iii. 3, 7
Books and Bookbinding..................iii. 3, 4
Books by Mail..............................iii. 4, 5, 6
Bovinine..ii. 4, 6
Bowden Lithia Springs Co.........iii. 14, 15
Bradley, T. A. & Co. (Stationery).....v. 7
Brandy, Royal Grape (Calvico)..........ii. 8
Bromine Lithia-water...................iii. 14, 15
Burn Brae..ii. 12
Bush's Fluid Food...............................ii. 6

Calf-pepsin, Glycerite of (Llewellyn)..i. 10
California Vintage Co..........................ii. 8
Carle, John & Sons...............................ii. 7
Carnrick's Soluble Food.......................ii. 5
Carpets..v. 4
Cascara (P., D. & Co.)...........................i. 3
Cell, Chloride-of-Silver........................ii. 14
Chair, Harvard....................................iii. 10
Chalybeate Pills (Warner).....................i. 5
Cheken (P., D. & Co.)............................i. 3
Chemicals (P., D. & Co..)......................i. 3
Chicago Sanitarium..............................ii. 12
Children's Food (Imperial Granum)..ii. 7
Chloranodyne (P., D. & Co.)...............v. 3
Coca (P., D. & Co.)................................i. 3
Coca-wine (Llewellyn)..........................i. 10
College of Physicians and Surgeons (Baltimore, Md.).........................iv. 8
Columbia Cycles (Safeties)................iii. 12
Consumptives, a Resort for.................ii. 10
Convallaria (P., D. & Co.)....................i. 3
Coto-bark (P., D. & Co.).......................i. 3
Cutter, Dr. (Vaccine Virus)..................ii. 12

Davis, F. A..i. 2
Digestive Pills (Warner).........................i. 5
Digestive Tablets (Mulford's)................i. 7
Doctors' Carriages...............................iv. 15
Drugs, Variation in Strength................i. 4
Duboisia (P., D. & Co.)..........................i. 3

Elastic Capsules (P., D. & Co.)............i. 3
Electric Specialties (Otto Flemming)ii. 12
Electro-Therapeutics.....................ii. 14, 15
Ether-inhaler (Yarnall's)...................iii. 8
Eucalyptus (P., D. & Co.)......................i. 3

THERAPEUTIC REFERENCES CONTAINED IN ADVERTISING PAGES.

ALBUMINURIA.
  Bovinine, ii. 6.
ANÆMIA.
  Arsenii et hyd. iod., triturates (Mulford & Co.), i. 7.
  Bovinine, ii. 4, 6.
  Hypophosphites (Gardner's), i. 7.
  Pil. chalybeate (Warner), i. 5.
  Pil. chalybeate co. (Warner), i. 5.
  Pil. ferri iodid. (Warner), i. 5.
  Vin Mariani, iv. ii.

BRONCHITIS.
  Cocaine et cubeb. co. tablets (Mulford & Co.), i. 7.
  Pil. terpin hydrate (W. H. S. & Co.), i. 6.
  Vin Mariani, iv. 2.

CANCER OF STOMACH.
  Bovinine, ii. 6.
  Imperial Granum, ii. 7.
CATARRH.
  Bovinine, ii. 4, 6.
  Pil. terpin hydrate (W. H. S. & Co.), i. 6.
  Rhinitis, triturates (Mulford & Co.'s), i. 7.
CHLOROSIS.
  Pil. chalybeate (Warner), i. 5.
  Pil. ferri iodid. (Warner), i. 5.
  Syrups of hypophosphites (Gardner), i. 8.
CONSTIPATION.
  Aloin belladonna strych. et ext. cascara, triturates (Mulford & Co.), i. 7.
  Anti-constipation tablets (Mulford & Co.'s), i. 7.
  Fluid ext. cascara (P., D. & Co.), i. 3.
  Pil. aloin belladonna et strychnin (Warner), i. 5.
  Pil. aloin belladonna et strychnin (W. H. S. & Co.), i. 6.
  Tasteless ext. cascara (P., D. & Co.), i. 3.
CONSUMPTION.
  Bland's pil. cum sumbul (Mulford's), i. 7.
  Bovinine, ii. 6.
  Brandy, Royal Grape (Calvico), ii. 8.
  Columbia cycles, iii. 12.
  Chemically-pure syrups of hypophosphites (Gardner's), i. 8.
  Florida (Occidental Land Co.), ii. 10, iii. 13, iv. 9.
  Health resorts, ii. 9, 10.
  Hypophosphites cum quin. co. tablets (Mulford's), i. 7.
  Imperial Granum, ii. 7.
  Pil. ferri iodid. (Warner), i. 5.
  Pil. Terpin hydrate (W. H. S. & Co.), i. 6.
  Sprup hydriodic acid (Gardner), i. 8.
  Vin Mariani, iv. 11.
  Pichi (P., D. & Co.), i
  Pichi (P., D. & Co.), i. 3.

PLACES REPRESENTED.

ATLANTA, GA.
  DR. JAS. G. THROWER, (Invalid-lift), ii. 13.
  SOUTHERN MEDICAL COLLEGE, iv. 9.

BALTIMORE, MD.
  COLLEGE OF PHYSICIANS AND SURGEONS, iv. 8.
  JOHN A. BARRETT BATTERY CO. (Electrical Supplies), ii. 14.
BOSTON, MASS.
  NEW ENGLAND VACCINE CO. (Animal Vaccine), ii. 12.
  POPE MANUFACTURING CO. (Columbia Cycles), iii. 12.

CANTON, OHIO.
  HARVARD CHAIR CO. (Best Operating Chair), iii. 10.
CHICAGO, ILL.
  DR. J. LUCIUS GRAY (Chicago Sanitarium), ii. 12.
  POST-GRADUATE MEDICAL SCHOOL AND CHARITY HOSPITAL, iv. 7.
  WOMEN'S MEDICAL COLLEGE OF CHICAGO, iv. 8.
CLIFTON HEIGHTS, DEL. CO., PA.
  BURN BRAE, ii. 12.

DENVER, COL.
  GROSS MEDICAL COLLEGE, iv. 7.
DETROIT, MICHIGAN.
  MESSRS. PARKE, DAVIS & CO. (Manufacturing Pharmacists), i. 3, v. 3.

FLORIDA.
  OCCIDENTAL LAND CO. (Health Resorts), ii. 10, iii. 13.
  TARPON SPRINGS, iv. 9.

GENERAL INDEX.

Fickinger & Stowell........................iv. 12
Fire-proof Safes (Marvin's)..............iv. 14
Flemming, Otto..................................ii. 12
Fletcher, Dr. W. B. (Sanitarium)....ii. 11
Florida.................ii. 10, iii. 13, iv. 9
Food, Medicinal (Imperial Granum)..ii. 7
Frisbie, Dr. (Vaccine Virus)............ii. 12

Galenical Preparations........................i. 5
Galvanic Batteries.....ii. 12, 14, 15, iii. 9
Gardner, R. W.......................................i. 8
Gelatin Capsules (P., D. & Co.)..........i. 3
Given, Dr. S. A. Mercer....................ii. 12
Glycerite of Calf-pepsin (Llewellyn)..i. 10
Gould's Medical Dictionary.............iii. 5
Gray, J. Lucius, Chicago Sanitarium.ii. 12
Grendelia (P., D. & Co.)......................i. 3
Gross Medical College (Denver, Col.) iv. 7

Hartsfeld Furnace and Refining Co...v. 7
Harvard Chair.....................................iii. 10
Health Resorts and Sanatoria...........ii. 9
Homes for Sportsmen and Invalids..iii. 13
Howell & Co., Chas. H. (Paints).......v. 6
Huber & Weber......................................v. 7
Hydrastinine (P., D. & Co.)...............v. 3
Hydrogen iodide......................................i. 8
Hypophosphites, Syrup of (Gardner).i. 8
Hysterionica (P., D. & Co.).................v. 3

Imperial Granum.................................ii. 7
Infant Foods...ii. 5
Invalids' Food (Imperial Granum)...ii. 7
Invalid-lift (Thrower's)......................ii. 3
Ivins, Dietz & Magee (Carpets).........v. 4

Jamaica Dogwood (P., D. & Co.).......i. 3
Jefferson Medical College, Phila......iv. 7
Jewelry...iv. 13

Kern, Horatio G. (Surg. Instrmts.).iii. 9

Lacto Preparata...............................ii. 4, 5
Lady Webster Pills (Warner)............i. 5
Landreth, D., & Sons (Seeds)............v. 5
Lippincott, J. B., Company..............iii. 4
Lithia-water (Georgia)...............iii. 14, 15
Llewellyn, W. H....................................i. 9
Luburg Chairs.......................................v. 7

Malt Extract (P., D. & Co.)................i. 4
Manaca (P., D. & Co.)..........................i. 3
Mariani Wine..iv. 11
Marine Paints (Howell & Co.)............v. 6
Marion Harland.....................................ii. 5
Marvin Safe Co.....................................iv. 14
Massey, Dr., Sanitarium....................ii. 12
Medical College of Indiana (Indianapolis)...iv. 8
Medical Supplies....................................i. 4
Medico-Chirurgical College, Phila...iv. 6
Milk-food, Lacto Preparata...............ii. 5
Mulford, H. K. & Co..............................i. 7

National Type-writer Co....................iv. 4
New England Vaccine Co..................ii. 12
Normal Liquids (P., D. & Co.)............i. 3
Nourishment of the Sick......................ii. 3

Occidental Land Co.....ii. 10, iii. 13, iv. 9
Oldach & Co. (Bookbinders)..............iii. 7
Operating Case (Yarnall's)................iii. 8
Optical Supplies.......................iv. 13, v. 7
Ornamental Iron Works......................iv. 5

Paint, Ajax (Howell & Co.)..................v. 6
Parke, Davis & Co.........................i. 3, v. 3
Pepsin (P., D. & Co.).......................i. 3, v. 3
Pepsin, Glycerite of Calf- (Llewellyn).i. 9
Peptonizing Tablets (P., D. & Co.)....v. 3
Pettit & Co., David (Iron Works)....iv. 5
Pharmaceutical Products......................i. 3
Phenacetine (Schieffelin).......................i. 6
Philadelphia Polyclinic and School for Graduates.....................................iv. 7
Phillips, Dr. J. Willoughby...............ii. 12
Photographs (Bishop)..........................v. 7
Physician Himself...............................iv. 10

THERAPEUTIC REFERENCES CONTAINED IN ADVERTISING PAGES.

Diarrhœa.
  Ext. krameria co. triturates (Mulford & Co., i. 7.
  Sterilised milk-food (Carnrick's), ii. 2, 3.
Diseases of Women.
  Dr. Massey's sanitarium, ii. 12.
  Electricity (Otto Flemming), ii. 12; (John A. Barrett Mfg. Co.), ii. 14; (Waite & Bartlett), ii. 15.
  Hydrastinine (P., D. & Co.), v. 3.
Dysentery.
  Hysterionica (P., D. & Co.), v. 3.
Dyspepsia.
  Antacid tablets (Mulford & Co.), i. 7.
  Bovinine, ii. 6.
  Brandy, Royal Grape (Calvico), ii. 8.
  California wines (Calvico), ii. 8.
  Digestive pills (Mulford & Co.), i. 7.
  Glycerite of calf-pepsin (Llewellyn), i. 9.
  Hysterionica (P., D. & Co.), v. 3.
  Imperial Granum, ii. 7.
  Malt extract (P., D. & Co.), i. 3.
  Pepsin (P., D. & Co.), i. 3, v. 3.
  Pil. antiseptic co. (Warner), i. 5.
  Pil. chalybeate co. (Warner), i. 5.
  Pil. digestiva (Warner), i. 5.
  Pil. ferri iodid. (Warner), i. 5.
  Soluble pills (W. H. S. & Co.), i. 6.
  Yellow-oxide-of-mercury tablets (P., D. & Co.), v. 3.

Epilepsy.
  Chicago sanitarium, ii. 12.
  Dr. Fletcher's sanitarium, ii. 11.

Fever.
  Aconite, belladonna, and bryonia triturates (Mulford & Co's.), i. 7.
  Brandy, Royal Grape (Calvico), ii. 8.
  Imperial Granum as a food, ii. 1.
  Soluble food (Carnrick's), ii. 5.
  Tr. aconite et belladonna triturates (Mulford & Co.'s), i. 7.
  Vin Mariani, iv. 11.

Gout.
  Pil. arthrosia (Warner), i. 5.

Heart-failure.
  Cactus grandiflora co., tablets (Mulford & Co's.), i. 7.
  Coca and cocaine (P., D. & Co.), i. 3.
  Cocoa wine (Lewellyn), i. 9.
  Nitro-glycerin co., triturates (Mulford & Co.'s), i. 7.
Hæmorrhage.
  Hydrastinine (P., D. & Co.), v. 3.
Hysteria.
  Pil. sumbul co. (Warner), i. 5.

Inanition.
  Bovinine, ii. 6.
  Brandy, Royal Grape (Calvico), ii. 8.
  Imperial Granum, ii. 7.
  Vin Mariani, iv. 11.
Indigestion.
  Calf-pepsin (Llewellyn), i. 9.
  Digestive tablets (Mulford), i. 7.
  Lady Webster pills (Warner), i. 5.

PLACES REPRESENTED.

Georgia.
  Bowden Lithia Springs Co. (Bromine Lithia-water), iii. 14, 15.

Indianapolis, Ind.
  Dr. W. B. Fletcher (Sanitarium), ii. 11.
  Medical College of Indiana, iv. 8.

Knoxville, Tennessee.
  Tennessee Medical College, iv. 8.

Philadelphia, Pa.
  Dr. G. Betton Massey (Private Sanitarium) ii. 12.
  Jefferson Medical College of Philadelphia, iv. 7.
  Luburg Manufacturing Co. (Rolling-chairs, etc.), v. 7.
  Medico-Chirurgical College of Philadelphia, iv. 6.
  Messrs. Charles H. Howell & Co (Ajax Paint), v. 6.
  Messrs. D. Landreth & Sons (Seed Farmers), v. 5.
  Messrs. David Pettit & Co. (Ornamental Iron Works), iv. 5.
  Messrs. Fickinger & Stowell (Wood-engravers and Designers), iv. 12.
  Messrs. H. K. Mulford & Co. (Manufacturing Pharmacists), i. 7.
  Messrs. Huber & Weber (Manufacturing Opticians), v. 7.
  Messrs. Ivins, Dietz & Magee (Manufacturers of Fine Carpetings), v. 4.
  Messrs. J. B. Lippincott Company (Book Publishers), iii. 4.
  Messrs. Oldach & Co. (Bookbinders), iii. 7.
  Messrs. P. Blakiston, Son & Co. (Book Publishers), iii. 5.
  Messrs. Simons, Bro. & Co. (Manufacturing Jewelers), iv. 13.
  Messrs. T. A. Bradley & Co. (Professional Men's Stationery), v. 7.
  Messrs. Trymby, Hunt & Co. (Upholstery Goods), v. 7.
  Messrs. Wm. R. Warner & Co. (Manufacturing Pharmacists), i. 5.
  Mr. E. A. Yarnall (Surgical Instruments, etc.), iii. 8.
  Mr. Horatio G. Kern (Surgical and Dental Instruments), iii. 9.
  Mr. J. Sims Wilson (Doctors' Carriages), iv. 15.
  Mr. Otto Flemming (Electric Specialties), ii. 12.
  Mr. W. H. Llewellyn (Prescription Druggist and Manufacturing Pharmacist), i. 9.
  National Type-writer Company (Writing-machines), iv. 4.
  Philadelphia Polyclinic and College for Graduates in Medicine, iv. 7.
  Reading Railroad (Fast Express Train Service), ii. 15.
  The Marvin Safe Co. (Fire-proof Safes), iv. 14.

GENERAL INDEX.

Pichi (P., D. & Co.)........i. 3
Pills, Soluble (Schieffelin)........i. 6
Pills, Sugar-coated (Warner)........i. 5
Polyclinic, Philadelphia........iv. 7
Pope Manufacturing Co. (Cycles)...iii. 12
Post-Graduate Medical School (Chicago)........iv. 7
Powders, Compressed........i. 7
Publisher's Announcement........i. 1

Reading Railroad........ii. 15
Reed & Carnrick........ii. 5
Remington Type-writer........iv. 5
Rennet Wine (Llewellyn)........i. 10
Rhinitis, Triturates (Mulford's)........i. 7

Salol (Schieffelin)........i. 6
Sanatoria........ii. 9
Sanitarium, Chicago........ii. 12
Sanitarium, Dr. W. B. Fletcher's........ii. 11
Sanitarium, Dr. Massey's........ii. 12
Sanitary Rubber Goods........v. 7
Schieffelin & Co........i. 6
Sea-shore (Reading R. R.)........ii. 15
Seeds, Vegetable or Garden (Landreth) v. 5
Simons Bros. & Co (Jewelry)........iv. 13
Soluble Food........ii. 4, 5
Soluble Pills (Schieffelin)........i. 6
Southern Medical College (Atlanta).iv. 9
Spectacles (Huber & Weber)........v. 7
Stationery, Professional........v. 7
Sugar-coated Pills (Warner)........i. 5
Syrup of Hydriodic Acid (Gardner)...i. 8

Tablets (Mulford's)........i. 7
Tarpon Springs........ii. 10. iii. 13, iv. 9
Tasteless Cascara (P., D. & Co.)........i. 3
Tennessee Medical College (Knoxville, Tenn.)........iv. 8
Terpin Hydrate (Schieffelin)........i. 6
Thermometers, Clinical........iii. 10
Thrower, Dr. J. G. (Invalid-lift)........ii. 13
Tokay Wine (Calvico)........ii. 8
Triturates (Mulford's)........i. 7
Trymby, Hunt & Co........v. 7
Type-writing Machines........iv. 3

Upholstery........v. 4

Vaccine Virus........ii. 12
Vail & Co., J. H........iii. 6
Viburnum (P., D. & Co.)........i. 3

Waite & Bartlett (Batteries)........ii. 15
Wheel-chairs (Luburg)........v. 7
Wilson, J. Sims (Carriages)........iv. 15
Wines, Pure (Calvico)........ii. 8
Wm. R. Warner & Co........i. 5
Wood-engravings........iv. 12
Wood Mantels........v. 7
Woman's Medical College (Chicago).iv. 8
Wyckoff, Seamans & Benedict........iv. 5

Yarnall E. A. (Surgical Insts.)........iii. 8
Yerba Santa (P., D. & Co.)........i. 3

THERAPEUTIC REFERENCES CONTAINED IN ADVERTISING PAGES.

Indigestion (*continued*).
  Malt extract (P., D. & Co.), i. 3.
  Pepsin (P., D. & Co.), i. 3.
  Pil. antiseptic co. (Warner), i. 5.
  Pil. digestiva (Warner), i. 5.
Infantile Disorders.
  Bovinine, ii. 6.
  Brandy, Royal Grape (Calvico), ii. 8.
  Carnrick's soluble food, ii. 4, 5.
  Imperial Granum, ii. 7.
  Lacto Preparata, ii. 4, 5.
  Tokay (Calvico), ii. 8.
Intestinal Worms.
  Santonin et hyd. chlor. mit. triturates (Mulford & Co's), i. 7.
Invalid Appliances.
  Carriages (Wilson), iv. 15.
  Harvard chair, iii. 10.
  Jas. G. Thrower's invalid-lift, ii. 13.
  Luburg Chair, v. 7.

Nervous Disorders.
  Bromine lithia-water (Bowden Springs), iii. 14.
  Burn Brae, Pa., ii. 12.
  Chicago sanitarium (Dr. Gray), ii. 12.
  Dr. Fletcher's sanitarium, ii. 11.
  Dr. Massey's sanitarium, ii. 12.
  Florida health resort, ii. 10.
  Pil. sumbul co. (Warner), i. 5.
Neuralgia.
  Chloranodyne (P., D. & Co.), v. 3.

Paralysis.
  Galvanic appliances, Otto Flemming, ii. 12.
  John A. Bartlett Battery Co., ii. 14.
  Waite and Bartlett, ii. 15.

Rectal Alimentation.
  Bovinine, ii. 6.
Rheumatism.
  Pil. antiseptic (Warner), i. 5.
  Pil. arthrosia (Warner), i. 5.
  Pil. phenacetin et salol (W. H. S. & Co.), i. 6.

Sciatica.
  Chloranodyne (P., D. & Co.), v. 3.
  Pil. phenacetin et salol (W. H. S. & Co.), i. 6.
Scrofulous Conditions.
  Bovinine, ii. 6.
  Syrup of hypophosphites (Gardner), i. 7.
Skin Diseases.
  Georgia bromine lithia-water, iii. 14.
Syphilis.
  Arsenii et hyd. iod. triturates (Mulford & Co's.), i. 9.

Writers' Cramp.
  Type-writers, iv. 4, 5.

PLACES REPRESENTED.

Newport, Ky.
  Hartsfeld Furnace & Refining Co. (Aluminum), v. 7.

New York.
  California Vintage Co. (Royal Grape Brandy and Calvico Wines), ii. 8.
  Messrs. J. H. Vail & Co. (Publishers and Importers), iii. 6.
  Messrs. J. P. Bush Mfg. Co. (Bovinine), ii. 6.
  Messrs. John Carle & Sons (Imperial Granum), ii. 7.
  Messrs. Mariani & Co. (Vin Mariani), iv. 11.
  Messrs. Reed & Carnrick (Infant-foods), ii. 5.
  Messrs. W. H. Schieffelin & Co. (Manufacturing Pharmacists and Importers), i. 6.
  Messrs. Waite & Bartlett Mfg. Co. (Manufacturing Electricians), ii. 15.
  Messrs. Wyckoff, Seamans & Benedict (Remington Standard Type-writer), iv. 5.
  Mr. John Barry (Clinical Thermometers), iii. 10.
  Mr. R. W. Gardner (Chemically-pure Syrups of Hypophosphites, etc.), i. 8.

Washington, D. C.
  Mr. J. E. Bishop (Photographer), v. 7.

3 Gal.
121 +